



# Product Catalog



# Innovative Research

<b>Human Blood Products</b>	<b>4</b>
1.1 Human Plasma	4
1.2 Human Serum	5
1.3 Human Whole Blood	6
<b>Animal Blood Products</b>	<b>7</b>
2.1 Animal Plasmas	7
2.2 Animal Serums	10
2.3 Animal Whole Blood	12
2.4 Fetal Bovine Serum	15
2.5 Animal Red Blood Cells	16
2.6 Complement Preserved Animal Serum	16
2.7 Purified Animal Immunoglobulins	17
2.8 Bulk Antisera to Animal Immunoglobulins	18
2.9 Bulk Antisera to Endocrine Proteins	19
<b>Coagulation Proteins</b>	<b>20</b>
3.1 Human Coagulation Factors	20
3.2 Bovine Coagulation Factors	25
3.3 Mouse Coagulation Factors	28
<b>Antibodies to Coagulation Proteins</b>	<b>30</b>
4.1 Antibodies to Human Coagulation Factors	30
4.2 Antibodies to Animal Coagulation Factors	34
4.3 Human Coagulation Factor ELISA Kits	35
<b>Immune Depleted Plasmas</b>	<b>36</b>
5.1 Immune Depleted Human Plasmas	36
5.2 Genetically Deficient Mouse Plasmas	36
<b>Plasminogen Activator Inhibitor 1 (PAI-1)</b>	<b>37</b>
6.1 Human PAI-1 Products	37
6.2 Anti-inflammatory Mutants of PAI-1	42
6.3 Mouse PAI-1	43
6.4 Rat PAI-1	43
6.5 Porcine PAI-1	44
6.6 Rabbit PAI-1	44
6.7 Polyclonal Antibodies to Rabbit PAI-1	44
6.8 Polyclonal Antibodies to Human PAI-1	45
6.9 Monoclonal Antibodies to Human PAI-1	46
6.10 Polyclonal Antibodies to Mouse PAI-1	47
6.11 Monoclonal Antibodies to Mouse PAI-1	48
6.12 Polyclonal Antibodies to Rat PAI-1	48
6.13 Monoclonal Antibodies to Rat PAI-1	49
6.14 PAI-1 Depleted Plasma	50
<b>PAI-1 ELISA Kits</b>	<b>51</b>
7.1 Human PAI-1 Activity ELISA Kit	51
7.2 Mouse PAI-1 Activity ELISA Kit	51
7.3 Mouse PAI-1 Total Antigen ELISA Kit	52
7.4 Rat PAI-1 Activity ELISA Kit	52
7.5 Rabbit PAI-1 Activity ELISA Kit	53
7.6 Porcine PAI-1 Activity ELISA Kit	53

<b>Tissue Plasminogen Activator (tPA)</b>	<b>54</b>
8.1 Human tPA	54
8.2 Mouse tPA	55
8.3 Rat tPA	55
8.4 Rabbit tPA	55
8.5 Polyclonal Antibodies to Human tPA	56
8.6 Monoclonal Antibodies to Human tPA	56
8.7 Polyclonal Antibodies to Mouse & Rat tPA	57
8.8 Monoclonal Antibodies to Mouse tPA	57
8.9 Polyclonal Antibodies to Rabbit tPA	58
8.10 tPA Depleted Plasma	58
8.11 Human tPA ELISA Kits	59
8.12 Mouse tPA ELISA Kits	60
8.13 Rat tPA ELISA Kits	61
<b>Urokinase (uPA)</b>	<b>62</b>
9.1 Human Urokinase	62
9.2 Mouse Urokinase	63
9.3 Mouse Urokinase Receptor	64
9.4 Rat Urokinase	64
9.5 Rabbit Urokinase	64
9.6 Dog Urokinase	64
9.7 Polyclonal Antibodies to Human uPA	64
9.8 Polyclonal Antibodies to Mouse uPA	65
9.9 Monoclonal Antibodies to Mouse uPA	66
9.10 Polyclonal Antibodies to Rabbit uPA	66
9.11 Polyclonal Antibodies to Dog uPA	66
9.12 Polyclonal Antibodies to Human uPAR	66
9.13 Polyclonal Antibodies to Mouse uPAR	67
9.14 Human uPA ELISA Kits	68
9.15 Mouse uPA ELISA Kits	69
<b>Vitronectin</b>	<b>70</b>
10.1 Human Vitronectin Monomeric Form	70
10.2 Human Vitronectin Multimeric Form	70
10.3 Mouse Vitronectin	70
10.4 Rat Vitronectin	71
10.5 Rabbit Vitronectin	71
10.6 Porcine Vitronectin	71
10.7 Bovine Vitronectin	71
10.8 Polyclonal Antibodies to Human Vitronectin	71
10.9 Polyclonal Antibodies to Mouse Vitronectin	72
10.10 Monoclonal Antibodies to Human Vitronectin	72
10.11 Human Vitronectin ELISA Kit	73
<b>Fibronectin</b>	<b>74</b>
11.1 Human Fibronectin	74
11.2 Mouse Fibronectin	74
11.3 Hamster Fibronectin	74
<b>Plasminogen</b>	<b>75</b>
12.1 Human Plasminogen and Plasmin	75
12.2 Mouse Plasminogen and Plasmin	76
12.3 Polyclonal Antibodies to Mouse Plasminogen and Plasmin	76
12.4 Rabbit Plasminogen and Plasmin	77
12.5 Rat Plasminogen and Plasmin	77
12.6 Chicken Plasminogen and Plasmin	77
12.7 Bovine Plasminogen and Plasmin	78

12.8	Human Antiplasmin	78
12.9	Polyclonal Antibodies to Human Antiplasmin	78
12.10	Monoclonal Antibodies to Human Antiplasmin	78
12.11	Mouse Antiplasmin	79
12.12	Polyclonal Antibodies to Mouse Antiplasmin	80
12.13	Monoclonal Antibodies to Mouse Antiplasmin	80
<b>Receptor Associated Protein (RAP)</b>		<b>81</b>
13.1	Human RAP	81
13.2	Monoclonal Antibodies to Human RAP	82
13.3	Monoclonal Antibodies to Human LRP	82
13.3	Monoclonal Antibodies to Human VLDL Receptor	84
<b>Factor XI</b>		<b>85</b>
14.1	Human Factor XI	85
<b>Antithrombin III</b>		<b>86</b>
15.1	Human Antithrombin III	86
15.2	Rat Antithrombin III	86
15.3	Mouse Antithrombin III	86
15.4	Rabbit Antithrombin III	86
<b>Fibrinogen</b>		<b>87</b>
16.1	Human Fibrinogen	87
16.2	Animal Fibrinogen	87
16.3	Polyclonal Antibodies to Mouse Fibrinogen	88
16.4	Polyclonal Antibodies to Rabbit Fibrinogen	88
<b>Elastase</b>		<b>89</b>
17.1	Human Neutrophil Elastase	89
17.2	Porcine, Mouse, and Rat Pancreatic Elastase	89
17.3	Myeloperoxidase	90
<b>Ecotin</b>		<b>91</b>
18.1	Ecotin	91
<b>Thioester Peptide CMK Labeling Reagents</b>		<b>92</b>
19.1	ATA-PHE-PRO-ARG-CMK	92
19.2	ATA-PHE-PHE-ARG-CMK	92
19.3	Fluorescein-PHE-PRO-ARG-CMK	92
<b>Immobilized Proteins</b>		<b>93</b>
20.1	Immobilized Soybean Trypsin Inhibitor	93
20.2	Immobilized Human Plasmin	93
20.3	Immobilized Human uPA	93
20.4	Immobilized Human tPA	93
20.5	Immobilized Porcine Pancreatic Elastase	94
20.6	Immobilized Human Antithrombin	94
<b>Chromogenic Substrates</b>		<b>95</b>
21.1	Chromogenic Substrate for Plasmin	95
<b>General Information</b>		<b>96</b>

## Human Blood Products

## 1.1 HUMAN PLASMA

Human whole blood is drawn from healthy donors ages 18-65 from FDA licensed facilities. The blood is collected into a sterile blood collection bag containing the anticoagulant of choice. The blood is mixed with the anticoagulant during collection. The blood is then centrifuged, and the clear plasma portion is removed via extraction. The material undergoes viral testing and the final product is aliquoted to customer specifications and frozen at -70C. Human plasma is available collected into the following anticoagulants:

Anticoagulant	Code
Citrate (Na)	02
Alsevers	03
Heparin (Na)	04
ACD (Acid Citrate Dextrose)	05
EDTA (K2)	06
CPD (Citrate Phosphate Dextrose)	07
EDTA (K3)	09
EDTA (Na)	10
Heparin (K)	11
Heparin (Li)	12

IPNP	Pooled Normal Human Plasma in Sodium Citrate 1.0 ml
IPLA-0S	Single Donor Human Plasma 2.0 ml
IPLA-1	Pooled Normal Human Plasma 10 ml
IPLA-1S	Single Donor Human Plasma 10 ml
IPLA-2	Pooled Normal Human Plasma 50 ml
IPLA-2S	Single Donor Normal Human Plasma 50 ml
IPLA-3	Pooled Normal Human Plasma 100 ml
IPLA-3S	Single Donor Human Plasma 100 ml
IPLA-4	Pooled Normal Human Plasma 10 x 10 ml
IPLA-5	Pooled Normal Human Plasma 500 ml
IPLA-6	Pooled Normal Human Plasma 10 X 50 ml
IPLA-8	Pooled Normal Human Plasma 1000 ml

## 1.2 HUMAN SERUM

Human whole blood is drawn from healthy donors ages 18-65 from FDA licensed facilities. The blood is collected into a sterile empty blood bag and allowed to clot. The unit is centrifuged at 3000 to 5000 RPMs, and the clear serum portion is removed via extraction. The material undergoes viral testing and the final product is aliquoted to customer specifications and frozen at -70C.

IPLA-SERS	Single Donor Human Serum 2.0 ml
IPLA-SER0	Pooled Normal Human Serum 10 ml
IPLA-SER0S	Single Donor Human Serum 10 ml
IPLA-SER1	Pooled Normal Human Serum 50 ml
IPLA-SER1S	Single Donor Human Serum 50 ml
IPLA-SER2	Pooled Normal Human Serum 100 ml
IPLA-SER2S	Single Donor Human Serum 100 ml
IPLA-SER3	Pooled Normal Human Serum 500 ml
IPLA-SER4	Pooled Normal Human Serum 1000 ml
IPLA-SER5	Single Donor Human Serum from Females > 55 years of age 10 ml
IPLA-SER6	Single Donor Human Serum from Females > 55 years of age 50 ml

### 1.3 HUMAN WHOLE BLOOD

Human whole blood is drawn from healthy donors ages 18-65 from FDA licensed facilities. The blood is collected into a sterile blood collection bag containing the anticoagulant of choice. The blood is mixed with the anticoagulant during the collection process. The blood undergoes viral testing and the material is stored at 4C. All human whole blood, platelets and red cells are available pooled and in custom volumes. Human whole blood is available collected into the following anticoagulants:

<b>Anticoagulant</b>	<b>Code</b>
Citrate (Na)	02
Alsevers	03
Heparin (Na)	04
ACD (Acid Citrate Dextrose)	05
EDTA (K2)	06
CPD (Citrate Phosphate Dextrose)	07
EDTA (K3)	09
EDTA (Na)	10
Heparin (K)	11
Heparin (Li)	12

<b>IPLA-WB1</b>	<b>Single Donor Human Whole Blood</b> 10 ml
<b>IPLA-WB2</b>	<b>Single Donor Human Whole Blood</b> 1 unit (450 ml)                      >3 units                      >10 units
<b>IPLA-WB3</b>	<b>Human Red Blood Cells</b> 1 unit                      >3 units
<b>IPLA-WB4</b>	<b>Human Platelets</b> 1 unit                      >3 units



IHM-N	50 ml <b>Hamster Plasma</b> Hamster plasma is collected in the anticoagulant requested from healthy fasted hamsters of mixed sex. Male and female hamster plasma also available on a custom order basis.	100 ml	500 ml
IHMS-N	50 ml <b>Syrian Gold Hamster Plasma</b> Hamster plasma is collected in the anticoagulant requested from healthy fasted Syrian Gold hamsters of mixed sex. Male and female hamster plasma also available on a custom order basis.	100 ml	500 ml
IRB-N	50 ml <b>Rabbit Plasma</b> Rabbit plasma is collected in the anticoagulant requested from healthy fasted rabbits of mixed sex. Male and female rabbit plasma also available on a custom order basis.	100 ml	500 ml
IRBNZW-N	50 ml <b>New Zealand White Rabbit Plasma</b> Rabbit plasma is collected in the anticoagulant requested from healthy fasted New Zealand White rabbits of mixed sex. Male and female rabbit plasma also available on a custom order basis.	100 ml	500 ml
ICY-N	50 ml <b>Cynomolgus Monkey Plasma</b> Cynomolgus plasma is collected in the anticoagulant requested from healthy fasted Cynomolgus monkeys of mixed sex and 5-7 years of age. Male and female cynomolgus plasma also available on a custom order basis.	100 ml	500 ml
IRS-N	10 ml <b>Rhesus Monkey Plasma</b> Rhesus plasma is collected in the anticoagulant requested from healthy fasted Rhesus monkeys of mixed sex and 5-7 years of age. Male and female rhesus plasma also available on a custom order basis.	50 ml	100 ml
IBB-N	10 ml <b>Baboon Plasma</b> Baboon plasma is collected in the anticoagulant requested from healthy fasted Baboon monkeys of mixed sex. Male and female baboon plasma also available on a custom order basis.	50 ml	100 ml
IDG-N	10 ml <b>Dog (Mixed Breed) Plasma</b> Dog plasma is collected in the anticoagulant requested from healthy fasted mixed breed, mixed sex dogs over one year of age. Male and female dog plasma also available on a custom order basis.	50 ml	100 ml
IBG-N	50 ml <b>Beagle Plasma</b> Beagle plasma is collected in the anticoagulant requested from healthy fasted beagle canines of mixed sex over one year of age. Male and female beagle plasma also available on a custom order basis.	100 ml	500 ml
IBV-N	50 ml <b>Bovine Plasma</b> Bovine plasma is collected in the anticoagulant requested from healthy fasted bovines of mixed sex. Male and female bovine plasma also available on a custom order basis.	100 ml	500 ml
IPG-N	100 ml <b>Porcine Plasma</b> Porcine plasma is collected in the anticoagulant requested from healthy fasted swine of mixed sex. Male and female porcine plasma also available on a custom order basis.	500 ml	1000 ml
IGP-N	100 ml <b>Guinea Pig Plasma</b> Guinea pig plasma is collected in the anticoagulant requested from healthy fasted guinea pigs of mixed sex. Male and female guinea pig plasma also available on a custom order basis.	500 ml	1000 ml
IGT-N	50 ml <b>Goat Plasma</b> Goat plasma is collected in the anticoagulant requested from healthy fasted goats of mixed sex. Male and female goat plasma also available on a custom order basis.	100 ml	500 ml

IDK-N	100 ml <b>Donkey Plasma</b> Donkey plasma is collected in the anticoagulant requested from healthy fasted donkeys of mixed sex. Male and female donkey plasma also available on a custom order basis.	500 ml	1000 ml
IHR-N	100 ml <b>Horse Plasma</b> Horse plasma is collected in the anticoagulant requested from healthy fasted horses of mixed sex. Male and female horse plasma also available on a custom order basis.	500 ml	1000 ml
ISH-N	100 ml <b>Sheep Plasma</b> Sheep plasma is collected in the anticoagulant requested from healthy fasted sheep of mixed sex. Male and female sheep plasma also available on a custom order basis.	500 ml	1000 ml
ICK-N	100 ml <b>Chicken Plasma</b> Chicken plasma is collected in the anticoagulant requested from healthy fasted chickens of mixed sex. Male and female chicken plasma also available on a custom order basis.	500 ml	1000 ml
	50 ml	100 ml	500 ml

# 10 ANIMAL BLOOD PRODUCTS

## 2.2 ANIMAL SERUMS

Each animal serum is collected off the clot from fresh whole blood.

IMS-SER	<b>Mouse Serum</b> Mouse serum is collected off the clot from healthy fasted non-Swiss Albino mice of mixed sex. Male and female mouse serum also available on a custom order basis. 50 ml                      100 ml                      500 ml
IMSCD1-SER	<b>CD-1 Mouse Serum</b> Mouse serum is collected off the clot from healthy fasted CD-1 mice of mixed sex. Male and female mouse serum also available on a custom order basis. 50 ml                      100 ml                      500 ml
IMSC57-SER	<b>C57BL6 Mouse Serum</b> Mouse serum is collected off the clot from healthy fasted C57BL6 mice of mixed sex. Male and female mouse serum also available on a custom order basis. 10 ml                      25 ml                      50 ml
IMSBALB-SER	<b>Balb C Mouse Serum</b> Mouse serum is collected off the clot from healthy fasted Balb C mice of mixed sex. Male and female mouse serum also available on a custom order basis. 10 ml                      25 ml                      50 ml
IRT-SER	<b>Rat Serum</b> Rat serum is collected off the clot from healthy fasted Sprague-Dawley rats of mixed sex and 8-12 weeks of age. Male and female rat serum also available on a custom order basis. 50 ml                      100 ml                      500 ml
IRTW-SER	<b>Wistar Rat Serum</b> Rat serum is collected off the clot from healthy fasted Wistar rats of mixed sex and 8-12 weeks of age. Male and female rat serum also available on a custom order basis. 50 ml                      100 ml                      500 ml
IRTF-SER	<b>Fisher 344 Rat Serum</b> Rat serum is collected off the clot from healthy fasted Fisher 344 rats of mixed sex. Male and female rat serum also available on a custom order basis. 50 ml
IRTL-SER	<b>Lewis Rat Serum</b> Rat serum is collected off the clot from healthy fasted Lewis rats of mixed sex. Male and female rat serum also available on a custom order basis. 50 ml
IHM-SER	<b>Hamster Serum</b> Hamster serum is collected off the clot from healthy fasted hamsters of mixed sex. Male and female hamster serum also available on a custom order basis. 50 ml                      100 ml                      500 ml
IHMS-SER	<b>Syrian Gold Hamster Serum</b> Hamster serum is collected off the clot from healthy fasted Syrian Gold hamsters of mixed sex. Male and female hamster serum also available on a custom order basis. 50 ml                      100 ml                      500 ml
IRB-SER	<b>Rabbit Serum</b> Rabbit serum is collected off the clot from healthy fasted rabbits of mixed sex. Male and female rabbit serum also available on a custom order basis. 50 ml                      100 ml                      500 ml
IRBNZW-SER	<b>New Zealand White Rabbit Serum</b> Rabbit serum is collected off the clot from healthy fasted New Zealand White rabbits of mixed sex. Male and female rabbit serum also available on a custom order basis. 50 ml                      100 ml                      500 ml
ICY-SER	<b>Cynomolgus Monkey Serum</b> Cynomolgus serum is collected off the clot from healthy fasted Cynomolgus monkeys of mixed sex and 5-7 years of age. Male and female cynomolgus serum also available on a custom order basis. 10 ml                      50 ml                      100 ml



# 12 ANIMAL BLOOD PRODUCTS

## 2.3 ANIMAL WHOLE BLOOD

Each animal whole blood is available collected into the following anticoagulants:

Anticoagulant	Code
Citrate (Na)	02
Alsevers	03
Heparin (Na)	04
ACD (Acid Citrate Dextrose)	05
EDTA (K2)	06
CPD (Citrate Phosphate Dextrose)	07
Potassium Oxalate	08
EDTA (K3)	09
EDTA (Na)	10
Heparin (K)	11
Heparin (Li)	12

### IR1-130N Alligator Whole Blood

Alligator whole blood is collected in the anticoagulant requested from healthy fasted alligators of mixed sex. Male and female alligator whole blood also available on a custom order basis.

50 ml                      100 ml                      500 ml                      1000 ml

### IR1-180N Baboon Whole Blood

Baboon whole blood is collected in the anticoagulant requested from healthy fasted Baboon monkeys of mixed sex. Male and female baboon whole blood also available on a custom order basis.

50 ml                      100 ml                      500 ml

### IR1-260N Beagle Whole Blood

Beagle whole blood is collected in the anticoagulant requested from healthy fasted Beagle canines of mixed sex over one year of age. Male and female beagle whole blood also available on a custom order basis.

50 ml                      100 ml                      500 ml

### IR1-040N Bovine Whole Blood

Bovine whole blood is collected in the anticoagulant requested from healthy fasted bovines of mixed sex. Male and female bovine whole blood also available on a custom order basis.

50 ml                      100 ml                      500 ml                      1000 ml

### IR1-030N Calf Whole Blood

Calf whole blood is collected in the anticoagulant requested from healthy fasted calves of mixed sex. Male and female calf whole blood also available on a custom order basis.

50 ml                      100 ml                      500 ml                      1000 ml

### IR1-080N Chicken Whole Blood

Chicken whole blood is collected in the anticoagulant requested from healthy fasted chickens of mixed sex. Male and female chicken whole blood also available on a custom order basis.

50 ml                      100 ml                      500 ml

### IR1-160N Cynomolgus Monkey Whole Blood

Cynomolgus whole blood is collected in the anticoagulant requested from healthy fasted Cynomolgus monkeys of mixed sex and 5-7 years of age. Male and female cynomolgus whole blood also available on a custom order basis.

50 ml                      100 ml                      500 ml

### IR1-220N Dog Whole Blood

Dog whole blood is collected in the anticoagulant requested from healthy fasted mixed breed, mixed sex dogs over one year of age. Male and female dog whole blood also available on a custom order basis.

50 ml                      100 ml                      500 ml                      1000 ml

### IR1-120N Donkey Whole Blood

Donkey whole blood is collected in the anticoagulant requested from healthy fasted donkeys of mixed sex. Male and female donkey whole blood also available on a custom order basis.

50 ml                      100 ml                      500 ml                      1000 ml

IR1-060N	<b>Goat Whole Blood</b> Goat whole blood is collected in the anticoagulant requested from healthy fasted goats of mixed sex. Male and female goat whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml                      1000 ml
IR1-100N	<b>Goose Whole Blood</b> Goose whole blood is collected in the anticoagulant requested from healthy fasted geese of mixed sex. Male and female goose whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml
IR1-090N	<b>Guinea Pig Whole Blood</b> Guinea pig whole blood is collected in the anticoagulant requested from healthy fasted guinea pigs of mixed sex. Male and female guinea pig whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml
IR1-010N	<b>Horse Whole Blood</b> Horse whole blood is collected in the anticoagulant requested from healthy fasted horses of mixed sex. Male and female horse whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml                      1000 ml
IR1-240N	<b>Lamb Whole Blood</b> Lamb whole blood is collected in the anticoagulant requested from healthy fasted lambs of mixed sex. Male and female lamb whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml
IR1-140N	<b>Mouse Whole Blood</b> Mouse whole blood is collected in the anticoagulant requested from healthy fasted non-Swiss Albino mice of mixed sex. Male and female mouse whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml
IR1-141N	<b>CD-1 Mouse Whole Blood</b> Mouse whole blood is collected in the anticoagulant requested from healthy fasted CD-1 mice of mixed sex. Male and female mouse whole blood also available on a custom order basis. 50 ml
IR1-142N	<b>C57BL6 Mouse Whole Blood</b> Mouse whole blood is collected in the anticoagulant requested from healthy fasted C57BL6 mice of mixed sex. Male and female mouse whole blood also available on a custom order basis. 50 ml
IR1-143N	<b>Balb C Mouse Whole Blood</b> Mouse whole blood is collected in the anticoagulant requested from healthy fasted Balb C mice of mixed sex. Male and female mouse whole blood also available on a custom order basis. 50 ml
IR1-170N	<b>Rhesus Whole Blood</b> Rhesus whole blood is collected in the anticoagulant requested from healthy fasted Rhesus monkeys of mixed sex and 5-7 years of age. Male and female rhesus whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml
IR1-050N	<b>Rabbit Whole Blood</b> Rabbit whole blood is collected in the anticoagulant requested from healthy fasted rabbits of mixed sex. Male and female rabbit whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml
IR1-150N	<b>Rat Whole Blood</b> Rat whole blood is collected in the anticoagulant requested from healthy fasted Sprague-Dawley rats of mixed sex and 8-12 weeks of age. Male and female rat whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml
IR1-151N	<b>Wistar Rat Whole Blood</b> Rat whole blood is collected in the anticoagulant requested from healthy fasted Wistar rats of mixed sex and 8-12 weeks of age. Male and female rat whole blood also available on a custom order basis. 50 ml

# 14 ANIMAL BLOOD PRODUCTS

IR1-152N	<b>Fisher 344 Rat Whole Blood</b> Rat whole blood is collected in the anticoagulant requested from healthy fasted Fisher 344 rats of mixed sex and 8-12 weeks of age. Male and female rat whole blood also available on a custom order basis. 50 ml
IR1-153N	<b>Lewis Rat Whole Blood</b> Rat whole blood is collected in the anticoagulant requested from healthy fasted Lewis rats of mixed sex and 8-12 weeks of age. Male and female rat whole blood also available on a custom order basis. 50 ml
IR1-190N	<b>Rooster Whole Blood</b> Rooster whole blood is collected in the anticoagulant requested from healthy fasted roosters. 50 ml                      100 ml                      500 ml                      1000 ml
IR1-210N	<b>Salmon Whole Blood</b> Salmon whole blood is collected in the anticoagulant requested from healthy fasted salmon of mixed sex. Male and female salmon whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml                      1000 ml
IR1-020N	<b>Sheep Whole Blood</b> Sheep whole blood is collected in the anticoagulant requested from healthy fasted sheep of mixed sex. Male and female sheep whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml                      1000 ml
IR1-070N	<b>Swine Whole Blood</b> Swine whole blood is collected in the anticoagulant requested from healthy fasted porcine of mixed sex. Male and female porcine whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml                      1000 ml
IR1-200N	<b>Trout Whole Blood</b> Trout whole blood is collected in the anticoagulant requested from healthy fasted trout of mixed sex. Male and female trout whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml                      1000 ml
IR1-110N	<b>Turkey Whole Blood</b> Turkey whole blood is collected in the anticoagulant requested from healthy fasted turkeys of mixed sex. Male and female turkey whole blood also available on a custom order basis. 50 ml                      100 ml                      500 ml                      1000 ml

## 2.4 FETAL BOVINE SERUM

Fetal bovine serum (FBS) is a sterile, light brown colored liquid separated from the blood of the bovine fetus. All material meets with the approval of the U.S. Department of Agriculture and is obtained from sources free of BSE, Foot and Mouth Disease, and other reportable diseases pertaining to the species. Fetal bovine serum contains many substances which are needed by cultured cells to grow and live properly. It is the most widely used serum in the culturing of cells, tissues and organs *in vitro*, and is used in the manufacture of vaccines. USDA approved serum is collected from abattoirs located in North American countries approved by the USDA for importation of bovine products into the United States. 100% of US origin serum is collected from USDA licensed abattoirs located within the United States.

<b>IFBS-S</b>	<b>Standard Grade USDA Fetal Bovine Serum</b> Standard grade USDA FBS is collected aseptically and is ideal for tissue culture work. 100 ml                      500 ml                      1000 ml
<b>IFBS-SU</b>	<b>Standard Grade US Origin Fetal Bovine Serum</b> Standard grade US origin FBS is collected aseptically and is ideal for tissue culture work. 100 ml                      500 ml                      1000 ml
<b>IFBS-P</b>	<b>Premium Grade USDA Fetal Bovine Serum</b> Premium grade USDA FBS is collected aseptically and is ideal for researchers requiring low IgG. 100 ml                      500 ml                      1000 ml
<b>IFBS-PU</b>	<b>Premium Grade US Origin Fetal Bovine Serum</b> Premium grade US origin FBS is collected aseptically and is ideal for researchers requiring low IgG. 100 ml                      500 ml                      1000 ml
<b>IFBS-C</b>	<b>Charcoal Stripped USDA Fetal Bovine Serum</b> Charcoal stripped USDA FBS is collected aseptically and is ideal for researchers requiring low levels of hormones. 100 ml                      500 ml                      1000 ml
<b>IFBS-CU</b>	<b>Charcoal Stripped US Origin Fetal Bovine Serum</b> Charcoal stripped US origin FBS is collected aseptically and is ideal for researchers requiring low levels of hormones. 100 ml                      500 ml                      1000 ml
<b>IFBS-D</b>	<b>Dialyzed Fetal USDA Bovine Serum</b> Dialyzed USDA FBS is collected aseptically and dialyzed to remove small molecules such as nucleotides and amino acids. 100 ml                      500 ml                      1000 ml
<b>IFBS-DU</b>	<b>Dialyzed Fetal US Origin Bovine Serum</b> Dialyzed US origin FBS is collected aseptically and dialyzed to remove small molecules such as nucleotides and amino acids. 100 ml                      500 ml                      1000 ml
<b>IFBS-H</b>	<b>Heat Inactivated USDA Fetal Bovine Serum</b> Heat inactivated USDA FBS is collected aseptically and undergoes heat inactivation to inactivate complement. 100 ml                      500 ml                      1000 ml
<b>IFBS-HU</b>	<b>Heat Inactivated US Origin Fetal Bovine Serum</b> Heat inactivated US origin FBS is collected aseptically and undergoes heat inactivation to inactivate complement. 100 ml                      500 ml                      1000 ml

# 16 ANIMAL BLOOD PRODUCTS

## 2.5 ANIMAL RED BLOOD CELLS

A unit of red blood cells that have been washed and resuspended in a saline solution. Washed red cells are free of almost all traces of plasma. The cells are pooled together and packed into multiple suspensions according to their descriptions below.

IC100-0410	Bovine Red Blood Cells, Packed 100%	15 ml	30 ml	100 ml
IC100-0110	Horse Red Blood Cells, Packed 100%	15 ml	30 ml	100 ml
IC100-0210	Sheep Red Blood Cells, Packed 100%	15 ml	30 ml	100 ml
IC10-0410	Bovine Red Blood Cells, Packed 10%	15 ml	30 ml	100 ml
IC10-0110	Horse Red Blood Cells, Packed 10%	15 ml	30 ml	100 ml
IC10-0210	Sheep Red Blood Cells, Packed 10%	15 ml	30 ml	100 ml
IC10-0510	Rabbit Red Blood Cells, Packed 10%	15 ml	30 ml	100 ml
IC05-0810	Chicken Red Blood Cells, Packed 5%	15 ml	30 ml	100 ml
IC05-0910	Guinea Pig Red Blood Cells, Packed 5%	15 ml	30 ml	100 ml

## 2.6 COMPLEMENT PRESERVED ANIMAL SERUM

The complement system is a complex mixture of serum proteins that is activated sequentially when antibodies in the blood of an immune animal interact with the corresponding antigens. Complement proteins will quickly degrade if serum is not prepared and stored correctly. Our complement preserved serum is freshly collected aseptically and kept cold, then is flash frozen at -80C as soon as possible to prevent degradation of complement. This serum is a suitable starting material for the purification of any complement protein. Please inquire for guinea pig, rabbit, rat, sheep and human complement preserved sera.

IMS-COMPL	Complement Preserved Mouse Serum	5 ml	10 ml	25 ml	50 ml
-----------	----------------------------------	------	-------	-------	-------

## 2.7 PURIFIED ANIMAL IMMUNOGLOBULINS

These purified immunoglobulins are available as Protein A, Protein G, or DEAE purified protein at a concentration of 10 mg/ml, or as ammonium sulfate fractionation. Specifications are available on individual lots. Purified immunoglobulins are available in bulk.

IR-BV-GF	<b>Bovine IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-CK-GF	<b>Chicken IgY</b>			
	Purified Protein	Not Available		
IR-DK-GF	<b>Donkey IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-GT-GF	<b>Goat IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-GP-GF	<b>Guinea Pig IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-HT-GF	<b>Hamster IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-HS-GF	<b>Horse IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-HU-GF	<b>Human IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-MS-GF	<b>Mouse IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-RB-GF	<b>Rabbit IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-RT-GF	<b>Rat IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-SH-GF	<b>Sheep IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-SW-GF	<b>Swine IgG</b>			
	Purified Protein	10 mg	50 mg	1 g
IR-TK-GF	<b>Turkey IgY</b>			
	Purified Protein	Not Available		
			50 mg	1 g

# 18 ANIMAL BLOOD PRODUCTS

## 2.8 BULK ANTISERA TO ANIMAL IMMUNOGLOBULINS

These antibodies to animal immunoglobulins are available as antiserum or the purified IgG fraction. Specifications are available on individual lots. Antisera and purified IgG are available in bulk.

IR-CK-IGYG	<b>Anti Chicken IgY, Host Goat</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-CK-IGYR	<b>Anti Chicken IgY, Host Rabbit</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-CK-IGYS	<b>Anti Chicken IgY, Host Sheep</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-GT-IGD	<b>Anti Goat IgG, Host Donkey</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-HU-IGG	<b>Anti Human IgG, Host Goat</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-HU-IGGF	<b>Anti Human IgG Fe, Host Goat</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-HU-IGM	<b>Anti Human IgM u, Host Goat</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-MS-IGG	<b>Anti Mouse IgG, Host Goat</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-MS-IGD	<b>Anti Mouse IgG, Host Donkey</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-MS-IGS	<b>Anti Mouse IgG, Host Sheep</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-MS-IGGF	<b>Anti Mouse IgG Fe, Host Goat</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-RB-IGG	<b>Anti Rabbit IgG, Host Goat</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-RB-IGS	<b>Anti Rabbit IgG, Host Sheep</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-RB-IGG	<b>Anti Rabbit IgG Fe, Host Goat</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-RT-IGG	<b>Anti Rat IgG, Host Goat</b>				
	Antiserum	1 ml	10 ml	100 ml	1 L

## 2.9 BULK ANTISERA TO ENDOCRINE PROTEINS

These antisera to endocrine proteins and hormones of interest are also available in bulk. Specifications are available on individual lots.

IR-CEA	Anti Carcinoembryonic Antigen (CEA), Host Goat				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-CKMM	Anti Creatine Kinase-MM (CK-MM), Host Goat				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-CRP	Anti C-Reactive Protein (CRP), Host Goat				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-HCG-WG	Anti Human Chorionic Gonadotropin (HCG, Whole), Host Goat				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-HCG-WR	Anti Human Chorionic Gonadotropin (HCG, Whole), Host Rabbit				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-HCG-AG	Anti Human Chorionic Gonadotropin (HCG, Alpha), Host Goat				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-HCG-AS	Anti Human Chorionic Gonadotropin (HCG, Alpha), Host Sheep				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-HCG-BR	Anti Human Chorionic Gonadotropin (HCG, Beta), Host Rabbit				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-HCG-BG	Anti Human Chorionic Gonadotropin (HCG, Beta), Host Goat				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-FSH	Anti Follicular Stimulating Hormone (FSH), Host Goat				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-LH	Anti Luteinizing Hormone (LH), Host Goat				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-TSH	Anti Thyroid Stimulating Hormone (TSH), Host Sheep				
	Antiserum	1 ml	10 ml	100 ml	1 L
IR-PMSG	Anti Pregnant Mare Serum Gonadotrophin (PMSG), Host Goat				
	Antiserum	1 ml	10 ml	100 ml	1 L

**Coagulation Proteins****3.1 HUMAN COAGULATION FACTORS**

All coagulation factors are purified from fresh citrated human plasma.

**IHP Human Prothrombin (Factor II)**

Prepared from fresh frozen human plasma. Human Prothrombin is a glycoprotein of molecular weight 72,000, and consists of a single polypeptide chain. Activation of Prothrombin by Factor Xa yields the serine protease Thrombin. Prothrombin is homogeneous as judged by 10% SDS-PAGE gels and shows no reduction upon incubation with 2-mercaptoethanol. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl /1 mM Benzamidine/pH 7.4 \*Extinction Coefficient (1%) = 13.6 One unit = 90 µg Molecular Weight =72,000 daltons

100 units (9.0 mg)

1,000 units (90 mg)

**IHT Human alpha-Thrombin (Factor IIa)**

Prepared from homogeneous human prothrombin by activation with Factor Xa, Factor Va, and phospholipid. Human Thrombin is homogeneous as judged by 10% SDS-PAGE gels. This activated enzyme has a minimum activity of 2,700 NIH units/mg when compared to NIH standard thrombin. Buffer composition = 50 mM Sodium Citrate/0.2 M NaCl/0.1% PEG-8000/pH 6.5 \*Extinction Coefficient (1%) = 18.3 Molecular Weight = 37,000 daltons

<3,000 units

>3,000 units

**IHGT Gamma Thrombin**

A non-clotting derivative thrombin produced from homogeneous Human Thrombin by controlled incubation with immobilized Trypsin. Gamma-thrombin is a noncoagulant form of thrombin that retains much of its platelet-activating capacity. Gamma-thrombin is homogeneous as judged by 10% SDS-PAGE gels and shows complete reduction upon incubation with 2-mercaptoethanol. Buffer Composition = 10 mM Sodium Acetate/0.75 M NaCl/pH 6.0 Molecular Weight = 12,000 daltons Concentration determined by BCA

1.0 mg

**IHFV Human Factor V**

Prepared from fresh frozen human plasma. Human Factor V is a single chain glycoprotein with a MW of 330,000. Human Factor V is activated by thrombin and less effectively by Factor Xa to yield the active cofactor Va. Human Factor Va, Factor Xa, and phospholipid form the prothrombinase complex which is responsible for the rapid activation of Prothrombin to Thrombin. Human Factor V is homogeneous as judged by a 4-20% gradient gel and shows no reduction upon incubation with 2-mercaptoethanol. Buffer =10 mM Tris-HCl/10 mM Boric Acid/1 mM CaCl<sub>2</sub> /50% Glycerol/pH 7.2 \*Extinction Coefficient (1%) = 9.6 Molecular Weight = 330,000 daltons

0.1 mg

0.5 mg

**IHPS Human Protein S**

Protein S exists in two forms in human plasma, as the free protein and in complex with C4b-binding protein. Human protein S is a single-chain glycoprotein with a molecular weight of 69,000. HPS is homogeneous as judged on non-reducing SDS-PAGE gels and is a doublet upon incubation with 2-mercaptoethanol. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl /1 mM Benzamidine/pH 7.4 \*Extinction Coefficient (1%) = 9.5 One unit = 10 µg Molecular Weight = 69,000 daltons

1.0 mg

**IHFVII**                      **Human Factor VII (Proconvertin)**

Prepared from fresh frozen human plasma. Human Factor VII is a single-chain vitamin K dependent glycoprotein found in trace quantities in plasma (4 mg/Liter). It is a single band on 10% SDS-PAGE gels and shows no reduction upon incubation with 2-mercaptoethanol. In the Tissue Factor Pathway of coagulation, Human Factor VIIa, in the presence of calcium ions and tissue factor, activates Factors IX and X to their enzymatically active forms, Factor IXa and Xa. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl/1 mM Benzamidine/pH 7.4 \*Extinction Coefficient (1%) = 13.9 Molecular Weight = 50,000 daltons

0.1 mg                                      1.0 mg

**IHFVIIa**                      **Human Factor VIIa**

Prepared from purified Human Factor VII using Human Factor XIIIa. The Factor XIIIa is removed using our CTI column. Complete activation is observed on a 10% SDS-PAGE gel. The clotting activity is greater than 30,000 u/mg. This protein is a single band at 50,000 MW on a non-reduced gel and reduces to 29,500 and 23,500 with the addition of 2-mercaptoethanol. Factor VIIa, in the presence of calcium ions and Tissue factor, activates Factors IX and X to their enzymatically active forms, Factor IXa and Xa. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl/pH 7.4 \*Extinction Coefficient (1%) = 13.9 Molecular Weight = 50,000 daltons

0.1 mg                                      1.0 mg

**IHPC**                              **Human Protein C**

Purified from fresh frozen human plasma using a combination of salt precipitations and column chromatography, this protein is a single band on non-reducing 10% SDS-PAGE gels and shows total reduction upon incubation with 2-mercaptoethanol. No other coagulation factors are detected by functional assay. Protein C is activated to the serine protease, Activated Protein C (APC), by a-thrombin or the complex of a-thrombin/thrombomodulin and is a potent anticoagulant through the selective inactivation of Factors Va and VIIIa. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl/1 mM Benzamidine/pH 7.4 \*Extinction Coefficient (1%) = 14.5 Molecular Weight = 62,000 daltons

0.1 mg                                      1.0 mg

**IAPC**                              **Human Activated Protein C**

Activated Protein C (APC) is a serine protease derived from the two chain vitamin K dependent zymogen, Protein C. APC inhibits blood coagulation through the selective inactivation of the cofactors Va and VIIIa. APC is prepared from homogeneous protein C by activation with purified thrombin. This thrombin is removed after activation by ion exchange chromatography. Activated Protein C is homogeneous on 10% SDS-PAGE gels and shows complete reduction upon incubation with 2-mercaptoethanol. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl/ pH 7.4 \*Extinction Coefficient (1%) = 14.5 Molecular Weight = 56,000 daltons

0.1 mg                                      1.0 mg

**IHFIX**                              **Human Factor IX (Christmas Factor)**

Prepared from fresh frozen human plasma. This protein is homogeneous on 10% SDS-PAGE gels and shows no reduction upon incubation with 2-mercaptoethanol. No other coagulation factors are detected by functional assay. Using FIX deficient plasma as a substrate, Human Factor IX has an activity of approximately 175 units/mg of protein. Human Factor IX, activated by either the Contact or Tissue Factor Pathway, is responsible for the activation of Factor X to Xa. Buffer composition: 20 mM Tris-HCl/0.1 M NaCl /1 mM Benzamidine/pH 7.4 \*Extinction Coefficient (1%) = 13.2 One unit = 5 µg Molecular Weight = 56,000 daltons

100 units (0.5 mg)                                      500 units (2.5 mg)

## IHFIXaa

## Human Factor IXaa

Prepared from homogeneous Human Factor IX by activation with Russells' Viper Venom. This RVV-X cleaves a single internal Arg-Val peptide bond in the Factor IX. The RVV-X is removed after activation. Complete activation is observed on 10% SDS-PAGE gels. This protein is homogeneous on 10% SDS-PAGE gels and shows total reduction upon incubation with 2-mercaptoethanol. This form of activated Factor IX has about 50% of the coagulant activity of Human Factor IXab. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl /pH 7.4 \*Extinction Coefficient (1%) =14.9 One unit = 5 µg Molecular Weight = 56,000 daltons

100 units (0.5 mg)

500 units (2.5 mg)

## IHFIXab

## Human Factor IXab

Prepared from homogeneous Human Factor IX by activation with Bovine Factor XIa. This Bovine Factor XIa is removed after activation. Complete activation is observed on 10% SDS-PAGE gels. The Factor XIa activates Factor IX in a two-step reaction. In the first step, an internal Arg-Ala bond is cleaved, and in the second step, an Arg-Val bond is cleaved. The second cleavage leads to the liberation of an activation peptide from the NH<sub>2</sub>-terminal portion of the heavy chain to produce Factor IXab. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl /pH 7.4 \*Extinction Coefficient (1%) = 14.3 One unit =5 µg Molecular Weight = 45,000 daltons

100 units (0.5 mg)

500 units (2.5 mg)

## IHFIX

## Human Factor X

Prepared from fresh frozen human plasma. This Vitamin K dependent protein is a single band on non-reducing 10% SDS-PAGE gels and shows total reduction upon incubation with 2-mercaptoethanol. No other coagulation factors are detected by functional assay. Using FX deficient plasma as a substrate, Human Factor X has an activity of approximately 100 units/mg of protein. Human Factor X, once activated via the Contact Factor Pathway or the Tissue Factor Pathway, is responsible for the conversion of Prothrombin to Thrombin. Buffer composition 20 mM Tris-HCl/0.1 M NaCl /1 mM Benzamidine/pH 7.4 \*Extinction Coefficient (1%) =11.6 One unit =8 µg Molecular Weight =58,800 daltons

100 units (0.8 mg)

500 units (4.0 mg)

## IHFIXa

## Human Factor Xa

Human Factor Xa is prepared from homogeneous Human Factor X by activation with Russells' Viper Venom. This RVV-X is removed after activation. Complete activation is observed on 10% SDS-PAGE gels. Factor Xa, as part of the prothrombinase complex along with the cofactor Va, phospholipids and Calcium ions, catalyzes the rapid conversion of prothrombin to thrombin. Buffer composition = 20 mM Tris-HCl/0.7 M NaCl/pH 7.4 \*Extinction Coefficient (1%) =11.6 One unit = 8 µg Molecular Weight = 46,000 daltons

100 units (0.8 mg)

500 units (4.0 mg)

## IHFIXI

## Human Factor XI

Prepared from fresh frozen human plasma. Human Factor XI is a glycoprotein of molecular weight 160,000. This protein migrates as a single band on 10% SDS-PAGE gels in the absence of reducing agents. Human Factor XI is comprised of two identical polypeptide chains linked by disulfide bonds, which yield a single band at 80,000 upon reduction with 2-mercaptoethanol. The specific clotting activity of purified Human Factor XI is 170 - 200 u/mg. In vivo, Factor XI is activated to Factor XIa by Factor XIIa. The resulting Human Factor XIa consists of two heavy and two light chains held together by disulfide bridges. Buffer composition = 4 mM Sodium Acetate-HCl/0.15 M NaCl/pH 5.3 \*Extinction Coefficient (1%) = 13.1 Molecular Weight = 160,000 daltons

0.1 mg

IHF<sub>XIa</sub>

## Human Factor XIa

Prepared from homogeneous Human Factor XI using Human Factor XIIa. This XIIa was removed using a corn trypsin inhibitor column. Complete activation is observed on 10% SDS-PAGE gels. Factor XI, through the contact factor pathway cascade, is activated to Factor XIa via Factor XIIa and High Molecular Weight Kininogen. During activation by Factor XIIa and HK, FXI undergoes proteolytic cleavage in which the Mr=80,000 chain reportedly is cleaved to a heavy and light chain of Mr of about 48,000 and 33,000. This Factor XIa is responsible for the activation of Factor IX to Factor IXa. Unlike other examples of activation of vitamin K-dependent blood-clotting proteins, Factor XIa proteolysis of Factor IX does not require membrane surfaces. Buffer composition = 4 mM Sodium Acetate-HCl/0.15 M NaCl/pH 5.3 \*Extinction Coefficient (1%) = 13.1 Molecular Weight = 160,000 daltons

0.1 mg                      1.0 mg

IHF<sub>XIII</sub>

## Human Factor XIII (Fibrin Stabilizing Factor)

Human Factor XIII is a tetramer composed of two pairs of chains held together by noncovalent bonds. After activation of the zymogen via Thrombin to its active enzyme form, Factor XIIIa is responsible for catalyzing the formation of covalent bridges between fibrin units to increase the elasticity of the clot network. The resulting cross-linked fibrin is very insoluble and resistant to lysis. Buffer composition = 50 mM Tris-HCl/0.1 M NaCl/1 mM EDTA/10 kal inh units/mL Trasylol/20% glycerol/pH 7.5 \*Extinction Coefficient (1%)=13.8 Molecular Weight = 320,000 daltons

0.25 mg                      1.0 mg

## IHXIIa

## Human Factor alpha-XIIa (Activated Hageman Factor)

Human Factor a-XIIa is a serine protease responsible for the activation of Factor XI to XIa in the contact activation system. Human Factor XII and prekallikrein are thought to be involved in a reciprocal activation mechanism in which Factor XIIa activates prekallikrein to kallikrein, which in turn converts Factor XII to XIIa. Factor XIIa activates Factor XI to XIa thereby triggering the Contact Factor cascade. This purified Human Factor a-XIIa has <5% b form. Buffer composition = 4 mM Sodium Acetate-HCl/0.15 M NaCl/pH 5.3 \*Extinction Coefficient (1%) = 14.1 Molecular Weight = 80,000 daltons

0.5 mg                      1.0 mg

## IHPK

## Human Prekallikrein

Purified from fresh frozen human plasma. Human Prekallikrein is a single chain gamma globulin glycoprotein that participates in the early phase of contact activation, kinin formation and fibrinolysis. Purified Prekallikrein has a specific clotting activity of approximately 25 u/mg. Prekallikrein is homogeneous as judged by 10% SDS-PAGE gels and shows no reduction upon incubation with 2-mercaptoethanol. Buffer composition = 4 mM Sodium Acetate-HCl/0.15 M NaCl/pH 5.3 \*Extinction Coefficient (1%) =11.7 Molecular Weight = 86,000 daltons

1.0 mg                      5.0 mg

## IHPKa

## Human Kallikrein

Activation of Prekallikrein with Factor a-XIIa produces the enzymatically active Kallikrein. Kallikrein is a serine protease which consists of a heavy chain (Mr 52kD) and light chains (Mr either 36 or 33 kD) linked by disulfide bridges. Kallikrein possesses enzymatic activity toward Factor XII, HK, Plasminogen, Factors XI, IX, and VII, prorenin, and the complement system. After activation, the activating enzyme Factor XIIa is removed by affinity chromatography. Human Kallikrein is homogeneous as judged by 10% SDS-PAGE gels and shows complete reduction upon incubation with 2-mercaptoethanol. Buffer composition = 4 mM Sodium Acetate-HCl/0.15 M NaCl/pH 5.3 \*Extinction Coefficient (1%) = 11.7 Molecular Weight = ~86,000 daltons

1.0 mg                      5.0 mg





IBP	<b>Bovine Prothrombin (Factor II)</b>	Prepared from freshly collected bovine plasma, bovine Prothrombin is a glycoprotein of molecular weight 70,000 and consists of a single polypeptide chain. Activation of Prothrombin by Factor Xa yields the serine protease Thrombin. Prothrombin is homogeneous as judged by 10% SDS-PAGE gels and shows no reduction upon incubation with 2-mercaptoethanol. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl/ 1 mM Benzamidine/pH 7.4 *Extinction Coefficient (1%) =14.4 One unit = 100 µg Molecular Weight =70,000 daltons	100 units (10 mg)	1000 units (100 mg)
IBPGD	<b>Bovine Prothrombin (Gla-domainless)</b>	Prepared from freshly collected bovine plasma, bovine Prothrombin is a glycoprotein of molecular weight 70,000 and consists of a single polypeptide chain.	1.0 mg	
IBFV/Va	<b>Bovine Factor V/Va</b>	Purified from freshly collected bovine plasma using a combination of salt precipitations and column chromatography, this protein is a mixture of Factor V/Va and intermediate activation products as judged by 4-20% gradient gels. Bovine Factor Va functions as a cofactor with the serine protease Factor Xa in the activation of prothrombin. Buffer composition = 20 mM HEPES-HCl/0.15 M NaCl/ pH 7.4/50% glycerol *Extinction Coefficient (1%) = 9.6/ 1.74 One unit = 10 µg Molecular Weight = 330,000; 94,000; 74,000; 71,000; 31,000 daltons Concentration determined by BCA	100 units (1 mg)	500 units (5 mg)
IBFIX	<b>Bovine Factor IX (Christmas Factor)</b>	Prepared from freshly collected bovine plasma, this protein is a single band on 10% SDS-PAGE gels and shows no reduction upon incubation with 2-mercaptoethanol. No other coagulation factors are detected by functional assay. Activated Factor IX via factor XIa or the factor VIIa/tissue factor/ phospholipid complex, is responsible for the activation of Factor X to Xa. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl/1 mM Benzamidine/pH 7.4 *Extinction Coefficient (1%) = 14.9 One unit = 5 µg Molecular Weight = 55,400 daltons	100 units (0.5 mg)	500 units (2.5 mg)
IBFIXa	<b>Bovine Factor IXa</b>	Prepared from homogeneous Bovine Factor IX by activation with Bovine Factor XIa, this Bovine Factor XIa is removed after activation. Complete activation is observed on 10% SDS-PAGE gels. The Factor XIa activates FIX in a two-step reaction. In the first step, an internal Arg-Ala bond is cleaved, and in the second step, an Arg-Val bond is cleaved. The second cleavage leads to the liberation of an activation peptide from the NH <sub>2</sub> -terminal portion of the heavy chain to produce factor IXab. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl/pH 7.4 *Extinction Coefficient (1%) = 14.3 One unit = 5 µg Molecular Weight = 43,900 daltons	100 units (0.5 mg)	500 units (2.5 mg)
IBAT	<b>Bovine Antithrombin</b>	Purified from freshly collected bovine plasma, BAT is a single-chain glycoprotein which is considered to be the main physiological inhibitor of thrombin and Factor Xa. BAT is a single band on 10% SDS-PAGE gels and shows no reduction upon incubation with 2-mercaptoethanol. Buffer composition = 20 mM Tris-HCl/0.1M Sodium Citrate/0.15 M NaCl/pH 8.3 *Extinction Coefficient (1%) = 6.5 Molecular Weight = 58,000 daltons	1 mg	5 mg

**IBFXa**

**Bovine Factor Xa**

Bovine Factor Xa is prepared from homogeneous Bovine Factor X by activation with Russels' Viper Venom. This RVV-X is removed after activation. Complete activation is observed on 10% SDS-PAGE gels. Factor Xa, as part of the prothrombinase complex along with the cofactor Va, phospholipids and calcium ions, catalyzes the rapid conversion of prothrombin to thrombin. Buffer composition = 20 mM Tris-HCl/0.7 M NaCl/pH 7.4 \*Extinction Coefficient (1%) = 12.4 One unit = 10 µg Molecular Weight = 45,300 daltons

100 units (1 mg)

1000 units (10 mg)

**IBFIXa**

**Bovine Factor IXa**

Prepared from homogeneous Bovine Factor IX by activation with Russel's Viper Venom, this RVV-X is removed after activation. The RVV-X is responsible for converting Factor IX to an enzyme by cleavage of an internal Arg-Val peptide bond. The Factor IXa produced by RVV-X cleavage possesses a molecular weight identical to that of Factor IX but shows reduction upon incubation with 2-mercaptoethanol. This form of Factor IXa has about 50% of the coagulant activity of Factor IXab. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl/pH 7.4 \*Extinction Coefficient (1%) = 14.9 One unit = 5 µg Molecular Weight = 55,400 daltons

100 units (0.5 mg)

500 units (2.5 mg)

**IBFX**

**Bovine Factor X (Stuart Factor)**

Prepared from freshly collected Bovine plasma, this protein is a single band on 10% SDS-PAGE gels and shows total reduction upon incubation with 2-mercaptoethanol. No other coagulation factors are detected by functional assay. Bovine Factor X, once activated, via the contact factor pathway or tissue factor pathway, is responsible for the conversion of Prothrombin to Thrombin. Buffer composition = 20 mM Tris-HCl/0.1 M NaCl/ 1 mM Benzamidine/pH 7.4 \*Extinction Coefficient (1%) = 12.5 One unit = 10 µg Molecular Weight = 55,000 daltons

100 units (1 mg)

500 units (5 mg)

**IBFXIa**

**Bovine Factor XIa**

Bovine Factor XIa is purified from freshly collected Bovine Plasma using a combination of salt precipitations and activation on a negative surface. This Factor XIa is a potent activator of both human and Bovine Factor IX to their active form Factor IXab. This BXIa is a doublet on 10% SDS-PAGE gels and shows complete reduction upon incubation with 2-mercaptoethanol. Buffer composition = 50 mM Tris-HCl/0.1 M NaCl/1 mM Benzamidine/pH 8.0 Protein concentration is determined by BCA BPG Bovine Plasminogen Purified from freshly collected bovine plasma, this protein is homogeneous as judged by 10% SDS-PAGE gels and shows no reduction upon incubation with 2-mercaptoethanol. No Plasmin activity was detected using the chromogenic substrate S-2251. Plasminogen is activated to the serine protease plasmin via urokinase, streptokinase or tissue plasminogen activator. Buffer composition = 50 mM Tris-HCl/0.1 M NaCl /pH 7.4 \*Extinction Coefficient (1%) = 16.1 Molecular Weight = 90,000 - 94,000 daltons

1 mg

**IBFIB**

**Bovine Fibrinogen, Plasminogen Depleted (Factor I)**

Purified from freshly collected bovine plasma, this protein is homogeneous as judged by 4-20% gradient gel electrophoresis and is greater than 95% clottable. No other coagulation factors are detected by functional assay. Conversion of soluble fibrinogen to the insoluble clot-forming fibrin is the terminal stage of (blood) coagulation. Buffer composition = 10 mM Phosphate/20 mM Citrate/ 0.15 M NaCl/pH 7.4 \*Extinction Coefficient (1%) = 15.1 Molecular Weight = 330,000 daltons

25 mg

### 3.3 MOUSE COAGULATION FACTORS

All coagulation factors are purified from fresh citrated mouse plasma.

#### IMFIX

##### Mouse Factor IX

Murine factor IX is prepared from fresh citrated mouse plasma. The purified proteins are supplied in 50% (vol/vol) glycerol/H<sub>2</sub>O and should be stored at -20°C. Purity is determined by SDS-PAGE analysis and activity is measured using a factor IX clotting assay.

0.05 mg

#### IMFX

##### Mouse Factor X

Murine factor X is prepared from fresh citrated mouse plasma. The purified zymogen is supplied in 50% (vol/vol) glycerol/H<sub>2</sub>O and should be stored at -20°C. Purity is determined by SDS-PAGE analysis and activity is measured in a factor X clotting assay.

0.1 mg

#### IMPC

##### Mouse Protein C

Murine protein C is prepared from fresh citrated mouse plasma. Murine Protein C is provided in 50% (vol/vol) glycerol/H<sub>2</sub>O and should be stored at -20°C. Purity is determined by SDS-PAGE analysis and activity is measured using a chromogenic substrate based assay.

0.05 mg

#### IMPT

##### Mouse Prothrombin

Murine prothrombin is prepared from fresh mouse plasma. Mouse prothrombin is supplied in 50% (vol/vol) glycerol/H<sub>2</sub>O and should be stored at -20°C. Purity is determined by SDS-PAGE analysis, and activity is measured by clotting and/or chromogenic substrate assay, following conversion of prothrombin to thrombin.

0.1 mg

#### IMAPC

##### Mouse Activated Protein C

Activated protein C is prepared from purified protein C by activation with thrombin followed by ion exchange chromatography. APC is supplied in 50% (vol/vol) glycerol/H<sub>2</sub>O and should be stored at -20°C. Purity is determined by SDS-PAGE analysis and activity is measured using a chromogenic substrate assay. All production lots of APC are also tested for their ability to prolong the aPTT of normal human plasma, as required for the APC resistance assay. The results of this test are provided for each lot, as an aPTT (+/- APC) ratio (10nM APC).

0.05 mg

#### IMT

##### Mouse Thrombin

Mouse thrombin is prepared from purified prothrombin using a modification of the Lundblad procedure as described by Nesheim et al. Thrombin is supplied in 50% (vol/vol) glycerol/H<sub>2</sub>O and should be stored at -20°C. Purity is determined by SDS-PAGE analysis and activity is measured in a thrombin specific clotting assay, and compared to standardized NIH thrombin. Thrombin is also available with the active site blocked with either DFP, FPRck, or biotinylated FPRck.

0.05 mg

## IMFIXa

## Mouse Factor IXa

Factor IXa is prepared from highly purified factor IX by activation with factor XIa, as described by Lindquist et al. The factor IXa is further purified by gel filtration, followed by immunoaffinity purification. Factor IXa is also available with the active site irreversibly blocked by the tripeptide chloromethyl ketone, EGRck, or by the fluorescent inhibitor, Dansyl-EGRck. It is supplied in 50% (vol/vol) glycerol/H<sub>2</sub>O for storage at -20°C. Purity is assessed by SDS-PAGE analysis. Activity is determined in a one-stage clotting assay.

0.05 mg

## IMFXa

## Mouse Factor Xa

Factor Xa is prepared by activating purified factor X with the factor X activator isolated from Russell's viper venom. Factor Xa is purified from the activation mixture by chromatography over immobilized benzamidine followed by gel filtration. Several modified forms of factor Xa are also available including: A) active-site blocked factor Xa containing either the tripeptide chloromethyl ketone inhibitor EGRck, or the fluorescent inhibitor Dansyl-EGRck; and B) human Gla-domainless  $\alpha$ -factor Xa. The enzyme is supplied in 50% (vol/vol) glycerol/H<sub>2</sub>O and should be stored at -20°C. Purity is determined by SDS-PAGE analysis and activity is measured in a factor Xa clotting assay and/or chromogenic substrate assay.

0.05 mg

## Antibodies to Coagulation Proteins

## 4.1 ANTIBODIES TO HUMAN COAGULATION FACTORS

## Anti-Human Fibrinogen (Fg)

SAFG-IG Sheep, purified IgG	10 mg
SAFG-AP Sheep, affinity purified, IgG	0.5 mg
SAFG-HRP Sheep, perox-conj. IgG	0.2 mg
SAFG-APHRP Sheep, HRP-AP IgG	0.1 mg

## Anti-Human Fibrin fragment E (Fn-E)

SAFNE-IG Sheep, purified IgG	10 mg
SAFNE-HRP Sheep, perox-conj. IgG	0.2 mg

## Anti-Human Fibrinopeptide A (FPA: Aa 1-16 specific)

SAFPA-IG sheep, purified IgG	10 mg
SAFPA-AP sheep, affinity purified IgG	0.5 mg
SAFPA-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Prothrombin (FII)

SAFII-IG sheep, purified IgG	10 mg
SAFII-AP sheep, affinity purified IgG	0.5 mg
SAFII-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Prothrombin Fragments 1 &amp; 2

SAFII-F1AP sheep, affinity purified IgG	0.5 mg
SAFII-F2AP sheep, affinity purified IgG	0.5 mg

## Anti-human Thrombin (FIIa)

SAHT-IG sheep, purified IgG	10 mg
SAHT-AP sheep, affinity purified IgG	0.5 mg
SAHT-HRP sheep, perox-conj. IgG	0.2mg

## Anti-human Factor V (FV)

SAFV-IG sheep, purified IgG	10 mg
SAFV-AP sheep, affinity purified IgG	0.5 mg
SAFV-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Factor VII (FVII)

SAFVII-IG sheep, purified IgG	10 mg
SAFVII-AP sheep, affinity purified IgG	0.5 mg
SAFVII-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Protein S (PS)

GAPS-IG goat, purified IgG	5 mg
GAPS-HRP goat, perox-conj. IgG	0.2 mg
SAPS-IG sheep, purified IgG	10 mg
SAPS-AP sheep, affinity purified IgG	0.5 mg
SAPS-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Protein Z (PZ)

SAPZ-IG sheep, purified IgG	10 mg
SAPZ-AP sheep, affinity purified IgG	0.5 mg
SAPZ-HRP sheep, perox-conj IgG	0.2 mg

## Anti-human Plasminogen (Pg)

GAPG-IG goat, purified IgG	5 mg
GAPG-AP goat, affinity purified IgG	0.5 mg
GAPG-APHRP goat, HRP-AP IgG	0.1 mg
SAPG-IG sheep, purified IgG	5 mg
SAPG-AP sheep, affinity purified IgG	0.5 mg

## Anti-human Neutrophil Elastase (HNE)

SANE-IG sheep, purified IgG	10 mg
SANE-AP sheep, affinity purified IgG	0.5 mg
SANE-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Antithrombin III (ATIII)

SAAT-IG sheep, purified IgG	10 mg
SAAT-AP sheep, affinity purified IgG	0.5 mg
SAAT-APHRP sheep, HRP-AP	0.1 mg
GAAT-IG goat, purified IgG	10 mg
GAAT-AP goat, affinity purified IgG	0.5 mg

## Anti-human C1s

GAC1S-IG goat, purified IgG	10 mg
GAC1S-AP goat, affinity purified IgG	0.5 mg
GAC1S-HRP goat, perox-conj. IgG	0.2 mg

## Anti-human Heparin Cofactor-II (HCII)

GAHC2-IG goat, purified IgG	5 mg
GAHC2-AP goat, affinity purified IgG	0.5 mg
GAHC2-APHRP goat, HRP-AP IgG	0.1 mg

## Anti-human Protein C Inhibitor (PCI)

GAPCI-IG goat, purified IgG	10 mg
GAPCI-AP goat, affinity purified IgG	0.5 mg
GAPCI-HRP goat, perox-conj. IgG	0.2 mg

## Anti-human $\alpha$ 2Antiplasmin ( $\alpha$ 2AP)

GA2AP-IG goat, purified IgG	5 mg
GA2AP-AP goat, affinity purified IgG	0.5 mg
GA2AP-HRP goat, perox-conj. IgG	0.2 mg
SA2AP-IG sheep, purified IgG	10 mg

## Anti-Hirudin

SAHD-IG sheep, purified IgG	10 mg
SAHD-AP sheep, affinity purified IgG	0.5 mg
SAHD-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Creatine Kinase-BB

GACKBB-IG goat, purified IgG	5 mg
GACKBB-AP goat, affinity purified IgG	0.5 mg
GACKBB-APHRP goat, HRP-AP IgG	0.1 mg

## Anti-Human Thrombospondin

SATSP-IG sheep, purified IgG	10 mg
SATSP-AP sheep, affinity purified IgG	0.5 mg
SATSP-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Factor VIII:C (FVIII:C)

SAF8C-IG sheep, purified IgG	10 mg
SAF8C-AP sheep, affinity purified IgG	0.5 mg
SAF8C-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Factor IX (FIX)

GAFIX-IG goat, purified IgG	10 mg
GAFIX-AP goat, affinity purified IgG	0.5 mg
GAFIX-HRP goat, perox-conj. IgG	0.2 mg
GAFIX-APHRP goat, HRP-AP IgG	0.1 mg
SAFIX-IG sheep, purified IgG	10 mg
SAFIX-AP sheep, affinity purified IgG	0.5 mg
SAFIX-APHRP sheep, affinity purified IgG	0.1 mg

## Anti-human Factor X (FX)

GAFX-IG goat, purified IgG	10 mg
GAFX-AP goat, affinity purified IgG	0.5 mg
GAFX-HRP goat, perox-conj. IgG	0.2 mg
SAFX-AP sheep, affinity purified IgG	0.5 mg
RAFX-HRP rabbit, perox-conj. IgG	0.2 mg

## Anti-human Factor XI (FXI)

GAFXI-IG goat, purified IgG	5 mg
GAFXI-AP goat, affinity purified IgG	0.5 mg
GAFXI-HRP goat, perox-conj. IgG	0.2 mg
SAFXI-IG sheep, purified IgG	5 mg
SAFXI-AP sheep, affinity purified IgG	0.5 mg

## Anti-human Factor XII (FXII)

GAFXII-IG goat, purified IgG	5 mg
GAFXII-AP goat, affinity purified IgG	0.5 mg
GAFXII-HRP goat, perox-conj. IgG	0.2 mg
SAFXII-IG sheep, purified IgG	5 mg
SAFXII-AP sheep, affinity purified IgG	0.5 mg

## Anti-human Factor XIII (FXIII)

SAXIII-IG sheep, purified IgG	10 mg
SAXIII-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Factor XIII (A subunit)

SAF13A-IG sheep, purified IgG	10 mg
SAF13A-AP sheep, affinity purified IgG	0.5 mg
SAF13A-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Prekallikrein (PK)

SAPK-IG sheep, purified IgG	10 mg
SAPK-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Kininogen (KN)

SAKN-IG sheep, purified IgG	10 mg
SAKN-HRP sheep, perox-conj. IgG	0.2 mg

## Anti-human Glycoprotein IIb/IIIa (GPIIb/IIIa)

SA2B3A-IG sheep, purified IgG	10 mg
-------------------------------	-------

## Anti-human Thrombin Activatable Fibrinolysis Inhibitor (TAFI)

SATAFI-IG sheep, purified IgG		10 mg
SATAFI-AP sheep, affinity purified IgG	0.5 mg	
SATAFI-HRP sheep, perox-conj. IgG		0.2 mg

## Anti-human Protein C (PC)

GAPC-IG goat, purified IgG	5 mg	
GAPC-AP goat, affinity purified IgG	0.5 mg	
SAPC-IG sheep, purified IgG	10 mg	
SAPC-AP sheep, affinity purified IgG	0.5 mg	
SAPC-HRP sheep, perox-conj. IgG	0.2 mg	
MAPC-IG mouse monoclonal	0.5 mg	

## Anti-human $\alpha$ 1-Antitrypsin ( $\alpha$ 1AT)

SA1AT-IG sheep, purified IgG		10 mg
SA1AT-AP sheep, affinity purified IgG	0.5 mg	
SA1AT-APHRP sheep, HRP-AP IgG		0.1 mg
GA1AT-IG goat, purified IgG		10 mg
GA1AT-AP goat, affinity purified IgG		0.5 mg

## Anti-human $\alpha$ 2-Macroglobulin ( $\alpha$ 2M)

GAA2M-IG goat, purified IgG	10 mg	
GAA2M-AP goat, affinity purified IgG	0.5 mg	
GAA2M-APHRP goat, HRP-AP IgG	0.1 mg	

## Anti-human Platelet Factor 4 (PF4)

SAPF4-IG sheep, purified IgG	10 mg	
SAPF4-AP sheep, affinity purified IgG	0.5 mg	
SAPF4-HRP sheep, perox-conj. IgG	0.2 mg	

## Anti-human B2-Glycoprotein-1 (Apolipoprotein-H)

GAB2G-IG goat, purified IgG	5 mg	
GAB2G-AP goat, affinity purified IgG	0.5 mg	
GAB2G-HRP goat, perox-conj. IgG	0.2 mg	

## Anti-human von Willebrand Factor (vWF)

GAVWF-IG goat, affinity adsorbed IgG	2.5 mg	
GAVWF-AP goat, affinity purified IgG	0.5 mg	
GAVWF-HRP goat, perox-conj. IgG		0.15 mg

## Anti-human Tissue Factor (TF)

SATF-IG sheep, purified IgG	10 mg	
SATF-HRP sheep, perox-conj. IgG	0.2 mg	

## Anti-human Tissue Factor Pathway Inhibitor (TFPI)

SATFPI-IG sheep, purified IgG	10 mg	
-------------------------------	-------	--

## Anti-human Vimentin (Vm)

SAVM-IG sheep, purified IgG	10 mg	
SAVM-AP sheep, affinity purified IgG	0.5 mg	
SAVM-APHRP sheep, HRP-AP,	0.1 mg	

## Anti-human C1-esterase Inhibitor (C1 INH)

GACINH-IG goat, purified IgG		5 mg
GACINH-AP goat, affinity purified IgG	0.5 mg	
GACINH-HRP goat, perox-conj. IgG		0.2 mg

## 4.2 ANTIBODIES TO ANIMAL COAGULATION FACTORS

## Anti-rabbit Fibrinogen

SARFG-IG sheep, purified IgG		10 mg
SARFG-AP sheep, affinity purified IgG	0.5 mg	
SARFG-HRP sheep, perox-conj. IgG		0.2 mg

## Anti-bovine Thrombin (bFIIa)

SABT-IG sheep, purified IgG	10 mg	
SABT-AP sheep, affinity purified IgG	0.5 mg	
SABT-HRP sheep, perox-conj. IgG	0.2 mg	

## Anti-rabbit Thrombin (rFIIa)

SART-IG sheep, purified IgG	10 mg	
SART-AP sheep, affinity purified IgG	0.5 mg	
SART-HRP sheep, perox-conj. IgG	0.2 mg	

## Anti-bovine Factor V (bFV)

SABFV-IG sheep, purified IgG		10 mg
SABFV-AP sheep, affinity purified IgG	0.5 mg	
SABFV-HRP sheep perox-conj. IgG		0.2 mg

## Anti-rabbit Antithrombin III (rATIII)

SARAT-IG sheep, purified IgG		10 mg
SARAT-AP sheep, affinity purified IgG	0.5 mg	
SARAT-HRP sheep, perox-conj. IgG		0.2 mg

## Anti-canine Factor IX (cFIX)

RACIX-IG rabbit, purified IgG	5 mg	
RACIX-HRP rabbit, perox-conj IgG	0.5 mg	

## Anti-canine von Willebrand Factor (cvWF)

SACWF-IG sheep, purified IgG		5 mg
SACWF-HRP sheep, perox-conj. IgG	0.2 mg	

## Anti-rat von Willebrand Factor (rvWF)

SARTW-IG sheep, purified IgG	5 mg	
SARTW-HRP sheep, perox-conj. IgG	0.2 mg	

## Anti-mouse Immunoglobulin (mIgG:H&amp;L)

GAM-APHRP goat, HRP-AP IgG	0.5 mg	
----------------------------	--------	--

## Anti-rabbit Immunoglobulin (rIgG:H&amp;L)

SAR-APHRP sheep, HRP-AP IgG	0.5 mg	
-----------------------------	--------	--

## Anti-sheep Immunoglobulin (sIgG:H&amp;L)

DAS-APHRP Donkey, HRP-AP IgG	0.5 mg	
------------------------------	--------	--

## Purified IgG from Non-Immune Sera

NIR-IG Rabbit non-immune IgG	10 mg	
NIS-IG Sheep non-immune IgG	20 mg	
NIG-IG Goat non-immune IgG	10 mg	

### 4.3 HUMAN COAGULATION FACTOR ELISA KITS

#### ITAFIKT

#### TAFI total antigen ELISA kit

Rapid sandwich ELISA to measure human Thrombin Activatable Fibrinolysis Inhibitor (TAFI) antigen in plasma. Strip wells are pre-coated with polyclonal antibody to human TAFI. Plasma samples are diluted and applied to the wells. The TAFI present binds to the coated antibody. After washing away unbound material, peroxidase-labeled detecting antibody is applied and allowed to bind to the captured TAFI. The wells are again washed and a solution of tetramethylbenzidine (TMB, a peroxidase substrate) is applied and allowed to react for a fixed period of time. A blue color develops which changes to yellow upon quenching the reaction with acid. The color formed is measured spectrophotometrically in a microplate reader at 450 nm. The absorbance at 450 nm is proportional to the quantity of TAFI captured onto the well. The assay is calibrated using the reference plasma provided in the kit.

1 kit

## Immune Depleted Plasmas

Immune Depleted Plasmas are normal human plasmas from which target proteins have been removed by selective affinity immuno-adsorption. Plasmas deficient in most individual coagulation factors or protease inhibitors are a specialty of ours. Only the highest quality citrated plasma is used as starting material in our plasma products and in many cases the parent plasma is available as control material. The following Immune Depleted Plasma products are available in volumes from 1 ml to liter quantities. Please inquire for pricing.

### 5.1 IMMUNE DEPLETED HUMAN PLASMAS

IFII-DP	Factor II Deficient Plasma
IFV-DP	Factor V Deficient Plasma
IFVII-DP	Factor VII Deficient Plasma
IFVIII-DP	Factor VIII Deficient Plasma
IVWF-DP	von Willebrand Factor Deficient Plasma
IFIX-DP	Factor IX Deficient Plasma
IFX-DP	Factor X Deficient Plasma
IFXI-DP	Factor XI Deficient Plasma
IFXII-DP	Factor XII Deficient Plasma
IKN-DP	Kininogen Deficient Plasma
IPK-DP	Prekallikrein Deficient Plasma
IFXIII-DP	Factor XIII Deficient Plasma
IPC-DP	Protein C Deficient Plasma
IPS-DP	Protein S Deficient Plasma
IATIII-DP	Antithrombin Deficient Plasma
IATHC-DP	Antithrombin & Heparin Cofactor II Deficient Plasma
IHCII-DP	Heparin Cofactor II Deficient Plasma
IPCI-DP	Protein C Inhibitor Deficient Plasma
IA2AP-DP	alpha <sub>2</sub> -Antiplasmin Deficient Plasma
IC1INH-DP	C1 Inhibitor Deficient Plasma
IAPOH-DP	alpha <sub>2</sub> -Glycoprotein-I (Apolipoprotein-H, APO-H) Deficient Plasma
IPG-DP	Plasminogen Deficient Plasma
ITAFI-DP	TAFI Deficient Plasma

### 5.2 GENETICALLY DEFICIENT MOUSE PLASMAS

Please inquire about the availability of plasma and serum from mice with genetic null mutations to specific genes. The deficient blood products from these knockout mice should be useful as negative controls in experiments and assays. Current possible targets are PAI-1, urokinase, tPA and vitronectin.

## Plasminogen Activator Inhibitor 1 (PAI-1)

**Mr:** 50 kDa (glycosylated); 43 kDa (non glycosylated)

**Synthesis:** endothelial and smooth muscle cells

**Plasma concentration:** 20-100 ng/ml

Human PAI-1 is a single-chain glycoprotein with a molecular weight of 50 kDa. Wild type PAI is an efficient inhibitor of tissue-type and urokinase-type plasminogen activators (1). These enzymes convert plasminogen to its active form, plasmin, and are thought to influence many biological processes including fibrinolysis, ovulation, embryonic development, inflammation, tumor metastasis, wound healing and angiogenesis (2). PAI-1 belongs to the SERine Protease INhibitor superfamily (SERPINS) and will spontaneously decay into a latent (inactive) form with a half-life of approximately 1 hour at physiological pH and temperature. PAI-1 is slightly stabilized (half-life ~2 hours) by binding to the adhesive protein vitronectin with dissociation constants in the nanomolar range (3).

Innovative Research also offers a stable variant with a half-life greater than 145 hours. The mutant (Product code CPAI) was produced from a randomly mutated recombinant PAI-1 expression library (4). The increased stability is a result of the cooperative effect of four mutations. This mutant has shown great utility in experiments where a very long half-life is desired. This includes extended incubations in cell culture work and in vivo studies in animal models where it has recently been shown to be a potent inhibitor of angiogenesis (5). The crystal structure of this stable mutant has been solved and represents the closest approximation to the active form of the wild type inhibitor to date (6).

PAI-1 also interacts with a number of non-proteinase ligands, including the cell adhesion protein vitronectin and members of the low-density lipoprotein (LDL) receptor family, including the LDL receptor related protein (LRP), the very low-density lipoprotein (VLDL) receptor and gp330/megalin (7). There is increasing evidence of a relationship between elevated PAI-1 levels and the occurrence of coronary artery disease. A recent publication demonstrates that PAI-1 in the presence of vitronectin may be the most important physiological inhibitor of activated protein C (APC) (8).

### Technical Info

The PAI-1 products produced by Innovative Research are expressed recombinantly in *Escherichia coli*. The PAI-1 is purified under extremely gentle conditions and is never subjected to denaturants of any kind. The PAI-1 is provided as a frozen solution in a pH 6.6 buffer where it is stable at -70°C indefinitely. The protein concentration is determined spectrophotometrically at 280 nm using an extinction coefficient of 1.0 (0.1%). The solubility is up to 5 mg/ml.

### References

1. Sherman, P.M. et al. (1992) *J. Biol. Chem.* 267:7588-7595.
2. Lawrence, D.A. et al. (1994) *Biochemistry.* 33:3643-3648.
3. Lawrence, D.A. et al. (1994) *J. Biol. Chem.* 269:15223-15228.
4. Berkenpas, M.B. et al. (1995) *EMBO J.* 14:2969-2977.
5. Stefansson, S. et al. (2001) *J. Biol. Chem.* 276: 8135-8141.
6. Sharp, A.M. et al. (1999) *Structure.* 7:111-118.
7. Stefansson, S. et al. (1998) *J. Biol. Chem.* 273:6358-6366.
8. Rezaie, R. (2001) *J. Biol. Chem.* 276:15567-15570.

## 6.1 HUMAN PAI-1 PRODUCTS

### IPAI-A

#### Human PAI-1 (wild type active fraction)

Human wild type PAI-1 is produced as an active and latent form in *E. coli*. The purification conditions are gentle and result in an active fraction >99% pure and >98% active as determined by titration with HMW tc-urokinase and SDS PAGE.

0.5 mg

1.0 mg

## IPAI-L

## Human PAI-1 (wild type latent fraction)

<0.4% active as determined by titration with HMW tc-urokinase and SDS PAGE. Latent PAI-1 is a useful control for experiments when used in conjunction with the active form above.

0.5 mg

1.0 mg

## ICPAI

## Human PAI-1 (stable mutant form)

This human form of PAI-1 contains the following four mutations: K154T, Q139L, M354I and N150H. These mutations combine to confer great stability to the otherwise labile molecule essentially locking it into the active conformation. It is an ideal choice for in vivo studies.

0.5 mg

1.0 mg

## I6X-HISPAI

## Human PAI-1 (stable mutant – N-terminal poly-histidine tag)

Innovative Research Inc. has made available a patent pending mutant of human PAI-1 containing the four mutations described above that stabilize the activity of PAI-1. The N-terminus has been additionally modified with the introduction of a 6-X histidine tag. The tag allows for the immobilization of functionally active PAI-1 onto surfaces such as metal chelate microtiter plates or Ni<sup>2+</sup> resins. Many new applications for PAI-1 can be envisioned with this unique reagent.

0.5 mg

1.0 mg

## IGLYHPAI-A

## Human PAI-1 (glycosylated wild type active fraction)

This human wild type PAI-1 has been produced as an active and latent form in insect cells. It is glycosylated unlike recombinant PAI-1 produced in E. coli. The molecular weight is 46,000 Da. The purification conditions are gentle and result in an active fraction >99% pure and >98% active as determined by titration with HMW tc-urokinase and SDS PAGE.

0.5 mg

1.0 mg

## IGLYHPAI-L

## Human PAI-1 (glycosylated wild type latent fraction)

Glycosylated human wild type PAI-1 produced in insect cells with a molecular weight of 46,000 Da. <0.4% active as determined by titration with HMW tc-urokinase and SDS PAGE. Latent PAI-1 is a useful control for experiments when used in conjunction with the active form above.

0.5 mg

1.0 mg

## IGLYCPAI

## Human PAI-1 (glycosylated stable mutant)

Glycosylated human PAI-1 produced in insect cells with a molecular weight of 46,000 Da. The stable mutant contains mutations to confer additional stability to the otherwise labile molecule.

0.5 mg

1.0 mg

## INTCYSPAIA

## Human PAI-1 (N-terminal cysteine mutant, active fraction)

Wild type PAI-1 cloned with a cysteine residue at the N-terminus (patent pending). The active fraction is >95% pure and >98% active as determined by titration with HMW tc-urokinase and SDS PAGE. The protein is supplied in buffer with 1 mM DTT to prevent dimerization.

0.5 mg

1.0 mg



## INTAFPAI-A

## Human PAI-1 (N-terminal Alexa Fluor 488 labeled, active fraction)

Active wild type human PAI-1 Alexa Fluor 488 labeled by iodoacetamide substitution at the N-terminal cysteine (patent pending).

0.5 mg

1.0 mg

## INTAFPAI-L

## Human PAI-1 (N-terminal Alexa Fluor 488 labeled, latent fraction)

Latent wild type human PAI-1 Alexa Fluor 488 labeled by iodoacetamide substitution at the N-terminal cysteine (patent pending).

0.5 mg

1.0 mg

## INTAFCPAI

## Human PAI-1 (N-terminal Alexa Fluor 488 labeled stable mutant)

Stable mutant human PAI-1 Alexa Fluor 488 labeled by iodoacetamide substitution at the N-terminal cysteine (patent pending).

0.5 mg

1.0 mg

Alexa Fluor is a trademark of Molecular Probes, Inc.

## IHPAI-P1'NBD

## Human PAI-1 NBD labeled at the scissile bond of the reactive loop

P1'-NBD PAI-1 was created by mutagenesis of the P1' methionine residue (Met347) at the P1-P1' scissile bond to cysteine. This provided a free thiol group for NBD labeling, a fluorescent probe highly sensitive to changes in solvation and hydrophobic environment. The fluorescence emission of P1'-NBD PAI-1 is quenched upon cleavage of the reactive center loop by a target proteinase.

**References**

1. Olson S.T. et al. (2001) *Biochemistry* 40:11742-11756.

0.5 mg

1.0 mg

## IHPAI-P9NBD

## Human PAI-1 NBD labeled at the reactive center loop

P9-NBD PAI-1 was created by mutagenesis of the P9 serine residue (Ser338) on the reactive center loop to cysteine. This provided a free thiol group for incorporation of N,N'-dimethyl-N-(acetyl)-N'-(7-nitrobenz-2-oxa-1,3-diazol-4-yl) (NBD), a fluorescent probe highly sensitive to changes in solvation and hydrophobic environment. The fluorescence emission of P9-NBD PAI-1 is enhanced 6-7 fold upon insertion of the reactive center loop into beta-sheet A following complex formation with proteinases, formation of the latent species, or cleavage by elastase. The incorporated probe is excited at 480 nm and displays a broad emission spectrum with a peak centered 542 nm with a resultant blue-shift to 520 nm following reactive center loop insertion. The modified PAI-1 is nearly as active as wt PAI-1 and is more resistant to the spontaneous latency reaction making this an excellent tool for monitoring reaction rates of PAI-1 (1). P9-NBD PAI-1 has been utilized in a number of studies to determine the rates of loop insertion and SERPIN reaction mechanisms when reacted with various proteinases (1,2), inactivating antibodies (2) and conformational changes imposed by the binding of vitronectin (4).

**References**

1. Shore J.D. et al.(1995) *J Biol Chem* 270:5395-5398.

2. Lawrence D.A. et al.(2000) *J Biol Chem* 275:5839-5844.

3. Verhamme I.M. et al.(1999) *J Biol Chem* 274:17511-17517.

4. Gibson A. et al.(1997) *J Biol Chem* 272:5112-5121.

0.5 mg

1.0 mg

## IHPAI-T333R

## Human PAI-1 (mutant – substrate form)

A single substitution at position P14 in the reactive center loop produces a PAI-1 that becomes a substrate for proteinases rather than an inhibitor. This molecule is useful for mechanistic studies.

**References**

1. Lawrence D.A. et al. (2000) J Biol Chem 275:5839-5844.
2. Audenaert A.M. et al. (1994) J Biol Chem 269:19559-19564.

0.5 mg

1.0 mg

## IHPAI-A335E

## Human PAI-1 (mutant – substrate form)

Licensed from the laboratory of Professor Paul Declerck - Leuven BELGIUM. A single substitution at position P12 in the reactive center loop produces a PAI-1 that becomes a substrate for proteinases rather than an inhibitor. This molecule is useful for mechanistic studies.

0.5 mg

1.0 mg

## IPAI-C

## Human PAI-1 (wild type – elastase cleaved)

Human PAI-1 is provided cleaved at P3-P4 residues via immobilized elastase: <1% active. Useful for various control experiments requiring a non-reactive, reactive loop inserted species of PAI-1.

0.5 mg

1.0 mg

## IQ123K

## Human PAI-1 (vitronectin null binding mutant)

A single mutation which results in nearly complete loss of binding of the PAI-1 mutant to the important ligand vitronectin. All other aspects of PAI-1 biological activity such as anti-protease activity remain unaffected.

**References**

1. Redmond, E.M. et al. (2001) Circulation 103:597-603.

0.5 mg

1.0 mg

## IS119C-NBD

## Human PAI-1 (NBD labeled mutant)

This mutant contains a Ser to Cys replacement around the vitronectin binding site. Incorporation of an NBD labels allows for the reporting of binding to vitronectin.

0.5 mg

1.0 mg

## IPEP-1

## Ac-TVASSSTA Octapeptide

Ac-TVASSSTA is an Octapeptide mimic of the N-terminal residues of the reactive center loop of PAI-1 (cf. P14-P7 residues). The Octapeptide inactivates PAI-1 by substituting for strand 4 in beta-sheet A in a manner that competes with formation of the latent species. Insertion of the peptide into beta-sheet A effectively forms a stable complex that converts PAI-1 into a substrate for tissue-type plasminogen activator (tPA) and other target proteinases. The resulting species of PAI-1 is thermodynamically stable and is useful for investigating the role of reactive center loop insertion. Supplied as a lyophilized powder.

**References**

1. Kvassman J.O. et al. (1998) Biochemistry 37:15491-15502.

5 mg

10 mg

## IPAI-A-AN

## Peptide annealed human PAI-1

Active human wild-type (wt) PAI-1 is also available pre-annealed with the Octapeptide Ac-TVASSSTA and ready for immediate use. Please inquire regarding other species of annealed PAI-1.

**References**

1. Kvassman J.O. et al. (1998) Biochemistry 37:15491-15502.

0.5 mg

1.0 mg

## 6.2 ANTI-INFLAMMATORY MUTANTS OF PAI-1

Neutrophils contain high concentrations of the serine proteinases neutrophil elastase and cathepsin G, which are stored in intracellular vacuoles termed the azurophilic granules. These proteinases are a major protein constituent of neutrophils. Their primary role is to digest any pathogens that the neutrophil has phagocytosed. However, upon degranulation and/or apoptosis, the neutrophils release these proteinases into the surrounding tissue along with their intracellular contents. In this environment these proteinases can cause tissue damage and exacerbate the inflammatory response. Under license agreement with the American Red Cross, introduces three potent PAI-1 mutants targeted to the inflammatory enzymes elastase and Cathepsin G.

## IHPAI-AVI

## Human PAI -1 elastase specific mutant for in vivo studies

This human PAI-1 variant contains a mutation at the active site to make it specific for inhibition of elastase. Additional mutations provide resistance to cleavage and stability. This mutant contains a P1 Valine in place of the wild type Arginine residue, as well as V343A to prevent cleavage and I91L to prevent conversion from active to latent forms. This preparation has low endotoxin (<20 EU/mg) so is suitable for in vivo studies.

0.5 mg

1.0 mg

## IFPAI\*

## Human PAI -1 elastase specific mutant

A single mutation at the P1 position of PAI-1 alters the target specificity of PAI-1 from the plasminogen activators tPA and uPA to elastase. PAI-1 is normally a substrate for pancreatic and neutrophil elastase becoming cleaved at the P3 position. This mutant contains a P1 Alanine in place of the wild type Arginine residue resulting in an inhibitor of elastase as potent as  $\alpha_1$ PI (antitrypsin).

0.5 mg

1.0 mg

## IFPAI\*

## Human PAI -1 Cathepsin G specific mutant

A single mutation at the P1 position of PAI-1 alters the target specificity of PAI-1 from the plasminogen activators tPA and uPA to Cathepsin G. This mutant contains a P1 Phenylalanine in place of the wild type Arginine residue resulting in an inhibitor with the specificity of antichymotrypsin.

0.5 mg

1.0 mg

\*Under licensing agreement with the American Red Cross under patent number 6,103,498.

### 6.3 MOUSE PAI-1

#### IMPAI Mouse PAI-1 (wild type active form)

Recombinant mouse PAI-1 is the ideal choice for studies involving this animal model of fibrinolysis and cancer studies. The active fraction typically contains 70% active PAI-1.

0.5 mg 1.0 mg

#### IMPAL Mouse PAI-1 (wild type latent form)

Latent mouse PAI-1 is a useful control for experiments when used in conjunction with the active form above.

0.5 mg 1.0 mg

#### IMPAL-I91L Mouse PAI-1 (stable active mutant)

Using information obtained from the studies which produced the stabilized human PAI-1 described above (CPAI) we have available a form of mouse PAI-1 that has a single conservative mutation (Isoleucine 91 to Leucine).

0.5 mg 1.0 mg

### 6.4 RAT PAI-1

#### IRPAI Rat PAI-1 (wild type active form)

Recombinant rat PAI-1 is the ideal choice for studies involving this animal model of fibrinolysis and cancer studies. The active fraction typically contains 95% active PAI-1.

0.5 mg 1.0 mg

#### IRPAL Rat PAI-1 (wild type latent form)

Latent rat PAI-1 is a useful control for experiments when used in conjunction with the active form above.

0.5 mg 1.0 mg

#### IRPAL-I91L Rat PAI-1 (stable active mutant)

Has a single conservative mutation (Isoleucine 91 to Leucine) that yields a rat PAI-1 with an enhanced half-life as compared to the wild type.

0.5 mg 1.0 mg













**6.14 PAI-1 DEPLETED PLASMA****IHPLA-SC-PAI Human PAI-1 depleted plasma, sodium citrate**

Prepared from frozen human plasma using immobilized anti-human PAI-1 IgG.

10 ml

100 ml

**IHPLA-SC-PAI-TPA Human PAI-1 & tPA double depleted plasma, sodium citrate**

Prepared from frozen human plasma using immobilized anti-human PAI-1 IgG and anti-human tPA IgG.

10 ml

**IMPLA-SC-PAI Mouse PAI-1 depleted plasma, sodium citrate**

Prepared from frozen mouse plasma using immobilized anti-mouse PAI-1 IgG.

10 ml

100 ml

**IRPLA-SC-PAI Rat PAI-1 depleted plasma, sodium citrate**

Prepared from frozen rat plasma using immobilized anti-rat PAI-1 IgG.

10 ml

100 ml

**IRbPLA-SC-PAI Rabbit PAI-1 depleted plasma, sodium citrate**

Prepared from frozen rabbit plasma using immobilized anti-rabbit PAI-1 IgG.

10 ml

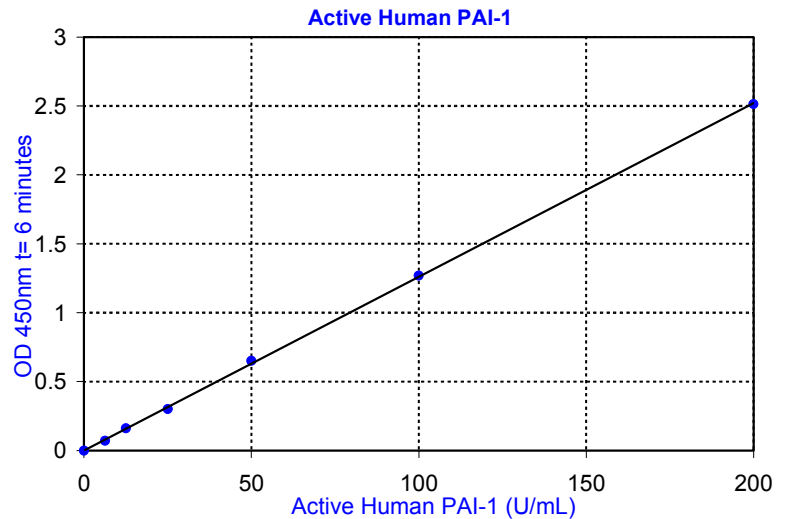
100 ml

## PAI-1 ELISA Kits

### 7.1 HUMAN PAI-1 ACTIVITY ELISA KIT

#### IHPAIKT Active human PAI-1 functional assay

The sensitive measurement of functionally active human PAI-1 is easily performed with this 96 well strip format ELISA kit. Functionally active PAI-1 present in plasma, serum, culture media or tissue extracts reacts with urokinase coated on a micro titer plate. Latent or complexed PAI-1 will not bind to the plate and will not be detected. After appropriate washing steps, anti human PAI-1 primary antibody binds to the PAI-1. Excess antibody is washed away, and bound antibody, which is proportional to the original active PAI-1 present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified human PAI-1 in plasma. All reagents and standards are provided in these ELISA kits.



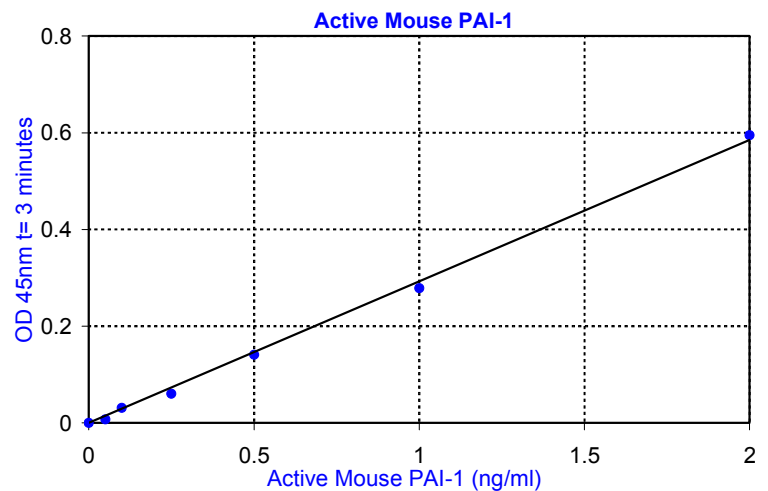
1 Kit

5 Kits

### 7.2 MOUSE PAI-1 ACTIVITY ELISA KIT

#### IMPAIKT Active mouse PAI-1 functional assay

The sensitive measurement of functionally active murine PAI-1 is easily performed with this 96 well strip format ELISA kit. Functionally active PAI-1 present in plasma, serum, culture media or tissue extracts reacts with urokinase coated on a micro titer plate. Latent or complexed PAI-1 will not bind to the plate and will not be detected. After appropriate washing steps, anti mouse PAI-1 primary antibody binds to the PAI-1. Excess antibody is washed away, and bound antibody, which is proportional to the original active PAI-1 present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified mouse PAI-1. All reagents and standards are provided in these ELISA kits.



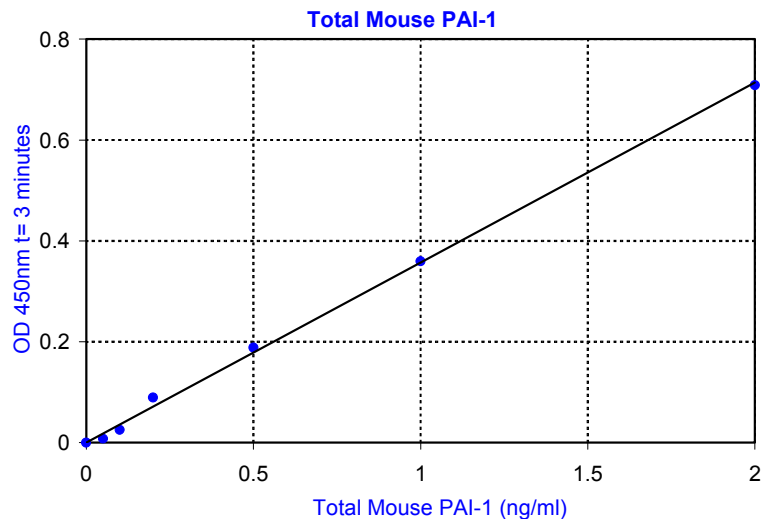
1 Kit

5 Kits

### 7.3 MOUSE PAI-1 TOTAL ANTIGEN ELISA KIT

#### IMPAIKT-TOT Total mouse PAI-1 antigen assay

The sensitive measurement of total murine PAI-1 antigen is easily performed with this 96 well strip format ELISA kit. Mouse PAI-1 present in plasma, serum, culture media or tissue extracts binds to the capture antibody coated on the micro titer plate. Free, latent and complexed PAI-1 will bind to the capture antibody. After appropriate washing steps, anti mouse PAI-1 primary antibody binds to the PAI-1. Excess antibody is washed away, and bound antibody, which is proportional to the original total PAI-1 present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified mouse PAI-1. All reagents and standards are provided in these ELISA kits.



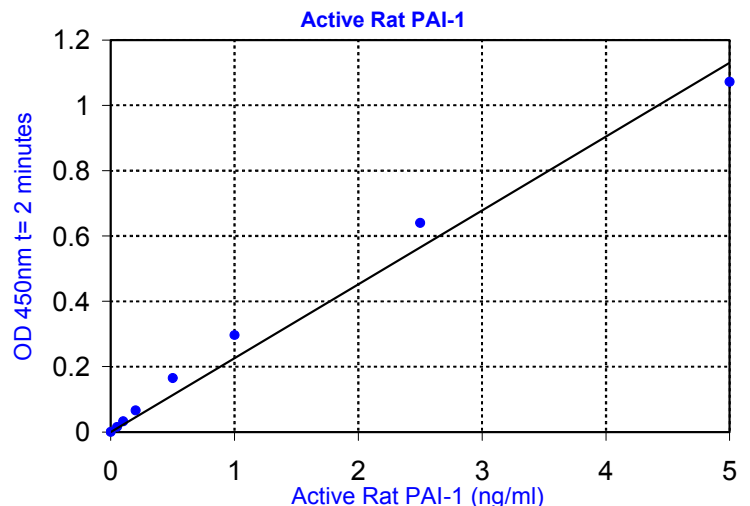
1 Kit

5 Kits

### 7.4 RAT PAI-1 ACTIVITY ELISA KIT

#### IRPAIKT Active rat PAI-1 functional assay

The sensitive measurement of functionally active rat PAI-1 is easily performed with this 96 well strip format ELISA kit. Functionally active PAI-1 present in plasma, serum, culture media or tissue extracts reacts with urokinase coated on a micro titer plate. Latent or complexed PAI-1 will not bind to the plate and will not be detected. After appropriate washing steps, anti rat PAI-1 primary antibody binds to the PAI-1. Excess antibody is washed away, and bound antibody, which is proportional to the original active PAI-1 present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified rat PAI-1. All reagents and standards are provided in these ELISA kits.



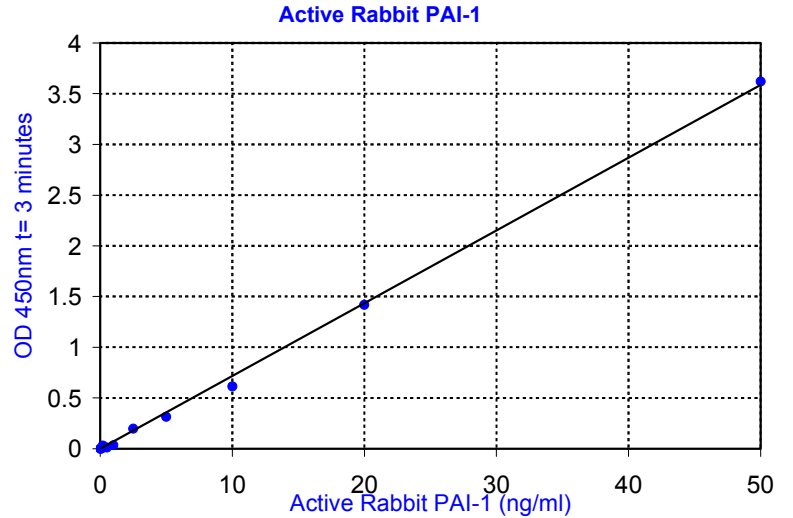
1 Kit

5 Kits

## 7.5 RABBIT PAI-1 ACTIVITY ELISA KIT

IRbPAIKT Active rabbit PAI-1 functional assay

The sensitive measurement of functionally active rabbit PAI-1 is easily performed with this 96 well strip format ELISA kit. Functionally active PAI-1 present in plasma, serum, culture media or tissue extracts reacts with urokinase coated on a micro titer plate. Latent or complexed PAI-1 will not bind to the plate and will not be detected. After appropriate washing steps, anti rabbit PAI-1 primary antibody binds to the PAI-1. Excess antibody is washed away, and bound antibody, which is proportional to the original active PAI-1 present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified rabbit PAI-1. All reagents and standards are provided in these ELISA kits.



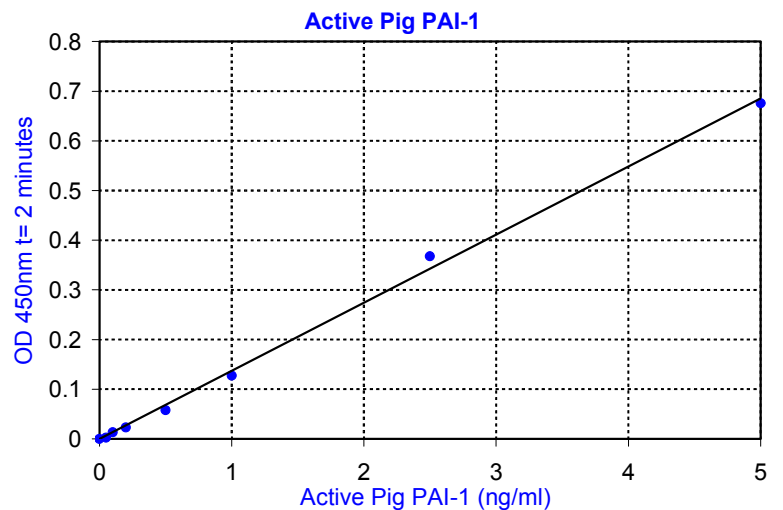
1 Kit

5 Kits

## 7.6 PORCINE PAI-1 ACTIVITY ELISA KIT

IPOPAIKT Active porcine PAI-1 functional assay

The sensitive measurement of functionally active porcine PAI-1 is easily performed with this 96 well strip format ELISA kit. Functionally active PAI-1 present in plasma, serum, culture media or tissue extracts reacts with urokinase coated on a micro titer plate. Latent or complexed PAI-1 will not bind to the plate and will not be detected. After appropriate washing steps, anti porcine PAI-1 primary antibody binds to the PAI-1. Excess antibody is washed away, and bound antibody, which is proportional to the original active PAI-1 present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified porcine PAI-1. All reagents and standards are provided in these ELISA kits.



1 Kit

5 Kits

## Tissue Plasminogen Activator (tPA)

**Mr:** 70 kDa

**Synthesis:** endothelial cells

**Plasma concentration:** 5-10 ng/ml

The plasminogen activator tPA is a fibrin specific activator of plasminogen. The fibrin specificity is a result of the interaction of the kringle-2 domain of tPA with specific lysine residues on fibrin. tPA is produced as an active single chain molecule with a molecular weight of about 70 kDa. It is cleaved to the more active two-chain form by the action of the plasmin product. Plasma levels of tPA are approximately 5-10 ng/ml. The majority of tPA in circulation is present as a complex with PAI-1.

### Technical Info

The tPA marketed by Innovative Research is a highly purified recombinant product. The protein concentration is determined spectrophotometrically at 280 nm using an extinction coefficient of 1.9 (0.1%). The solubility is greater than 2 mg/ml in the buffer supplied.

## 8.1 HUMAN TPA

**IHTPA** Human tissue plasminogen activator, >85% single chain

Recombinantly produced in Chinese Hamster Ovary (CHO) cells.

0.1 mg

1.0 mg

**IHTPA-TC** Human tissue plasminogen activator, >95% two chain

Activated from single-chain form with immobilized plasmin. 100% complex formation with human PAI-1.

0.1 mg

1.0 mg

**IHTPA-FITC** Human tissue plasminogen activator, single chain, FITC labeled

Fluorescein labeled tPA, >85% single chain. 100% complex formation with PAI-1.

0.1 mg

**IHTPA-TR** Human tissue plasminogen activator, single chain, Texas Red

Texas Red labeled tPA, >85% single chain. 100% complex formation with PAI-1.

0.1 mg

**8.2 MOUSE TPA**

**IMTPA** Active mouse tPA, recombinant

Recombinantly produced in insect cells.

0.1 mg 1.0 mg

**IMTPA-S481A** Non-enzymatic Mouse tPA

This single chain mouse tPA has the active site serine mutated to alanine rendering the enzyme catalytically inactive. The tPA still retains exosite binding as well as other biological properties of tPA including but not limited to surface binding to fibrin. This reagent should prove useful as a research tool to probe tPA biochemistry. References: 1. Olson ST, Swanson R, Day D, Verhamme I, Kvassman J, Shore JD. Resolution of Michaelis complex, acylation, and conformational change steps in the reactions of the serpin, plasminogen activator inhibitor 1. *Biochemistry* 2001 Oct 2; 40(39):11742-56

**References**

1. Olson, S.T. et al. (2001) *Biochemistry* 40:11742-11756.

0.1 mg 1.0 mg

**IMTPA-BIO** Biotin labeled active mouse tPA

Recombinantly produced in insect cells and biotin labeled.

0.05 mg 0.1 mg

**IMTPA-FITC** Fluorescein labeled active mouse tPA

Recombinantly produced in insect cells and fluorescein labeled.

0.05 mg 0.1 mg

**8.3 RAT TPA**

**IRTPA** Active rat tPA, recombinant

Recombinantly produced in insect cells.

0.1 mg 1.0 mg

**8.4 RABBIT TPA**

**IRbTPA** Active rabbit tPA, recombinant

Recombinantly produced in insect cells.

0.1 mg 1.0 mg

**8.5 POLYCLONAL ANTIBODIES TO HUMAN TPA****IASHTPA Rabbit anti human tPA antiserum**

Polyclonal antiserum (host rabbit).

1.0 ml 10 ml

**IASHTPA-GF Rabbit anti human tPA IgG fraction**

Polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.

1.0 mg 10 mg

**IASHTPA-GF-BIO Rabbit anti human tPA IgG fraction, biotin labeled**

Biotin labeled polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.

1.0 mg 10 mg

**IASHTPA-GF-FITC Rabbit anti human tPA IgG fraction, fluorescein labeled**

Fluorescein labeled polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.

1.0 mg 10 mg

**IASHTPA-GF-HT Rabbit anti human tPA affinity purified high titer IgG fraction**

Polyclonal antibody (host rabbit). Affinity purified by immobilized tPA.

0.1 mg 1.0 mg

**8.6 MONOCLONAL ANTIBODIES TO HUMAN TPA****IHTPA2A153 Mouse monoclonal to human tPA**

Produces excellent western blots with free and complexed forms of tPA. Purified by immobilized Protein A. IgG1 class.

1.0 mg 10 mg

**8.7 POLYCLONAL ANTIBODIES TO MOUSE & RAT TPA**

**IASMTPA Rabbit anti mouse & rat tPA antiserum**

Polyclonal antiserum (host rabbit).

1.0 ml 10 ml

**IASMTPA-GF Rabbit anti mouse & rat tPA IgG fraction**

Polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.

1.0 mg 10 mg

**IASMTPA-GF-BIO Rabbit anti mouse & rat tPA IgG fraction, biotin labeled**

Biotin labeled polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.

1.0 mg 10 mg

**IASMTPA-GF-FITC Rabbit anti mouse & rat tPA IgG fraction, fluorescein labeled**

Fluorescein labeled polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.

1.0 mg 10 mg

**IASMTPA-GF-HT Rabbit anti mouse & rat tPA affinity purified high titer IgG fraction**

Polyclonal antibody (host rabbit). Affinity purified by immobilized tPA.

0.1 mg 1.0 mg

**8.8 MONOCLONAL ANTIBODIES TO MOUSE TPA**

**IH27B6\* Mouse monoclonal to mouse tPA**

Capture monoclonal antibody produced in a tPA knockout mouse. Purified by immobilized Protein A. IgG1k class.

1.0 mg 10 mg

**IH6C5\* Mouse monoclonal to mouse tPA**

Detection monoclonal antibody produced in a tPA knockout mouse. Purified by immobilized Protein A. IgG2ak class.

1.0 mg 10 mg

\*Under licensing agreement with the D. Collen Research Foundation VZW.

**8.9 POLYCLONAL ANTIBODIES TO RABBIT TPA**

IASRbTPA Sheep anti rabbit tPA antiserum

Polyclonal antiserum (host sheep).

1.0 ml 10 ml

IASRbTPA-GF Sheep anti rabbit tPA IgG fraction

Polyclonal antibody (host sheep). IgG fraction purified by immobilized Protein G.

1.0 mg 10 mg

**8.10 TPA DEPLETED PLASMA**

IHPLA-SC-TPA Human tPA depleted plasma, sodium citrate

Prepared from frozen human plasma using immobilized anti-human PAI-1 IgG.

10 ml 100 ml

IHPLA-SC-PAI-TPA Human PAI-1 & tPA double depleted plasma, sodium citrate

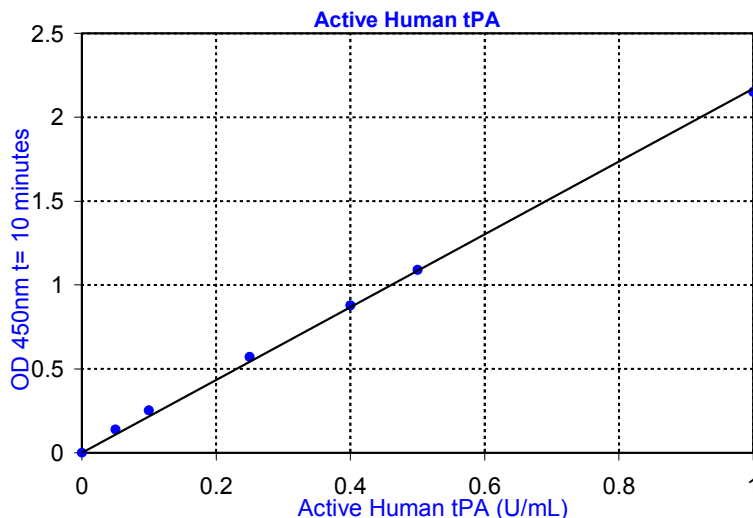
Prepared from frozen human plasma using immobilized anti-human PAI-1 IgG and anti-human tPA IgG.

10 ml

8.11 HUMAN TPA ELISA KITS

IHTPAKT Active human tPA functional assay

The sensitive measurement of functionally active human tPA is easily performed with this 96 well strip format ELISA kit. Functionally active tPA present in plasma, serum, culture media or tissue extracts will bind to functionally active PAI-1 provided for coating on the microtiter plate (patent pending). Only free active enzyme will react with the PAI-1 on the plate. Inactive or complexed enzyme will not be detected. After appropriate washing steps, anti human tPA primary antibody binds to the tPA. Excess antibody is washed away, and bound antibody, which is proportional to the original active tPA present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified human tPA. All reagents and standards are provided in these ELISA kits.

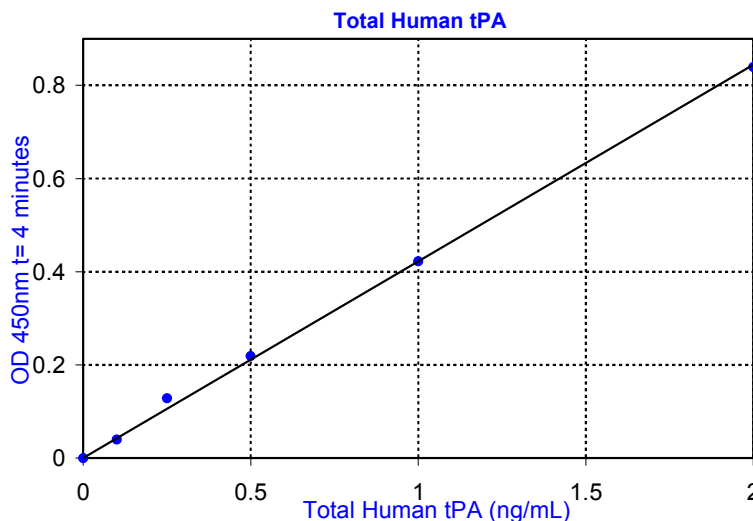


1 Kit

5 Kits

IHTPAKT-TOT Total human tPA antigen assay

The sensitive measurement of total human tPA antigen is easily performed with this 96 well strip format ELISA kit. Human tPA present in plasma, serum, culture media or tissue extracts binds to the capture antibody coated on the micro titer plate. Free and complexed tPA will bind to the capture antibody. After appropriate washing steps, anti human tPA primary antibody binds to the tPA. Excess antibody is washed away, and bound antibody, which is proportional to the original total tPA present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified human tPA. All reagents and standards are provided in these ELISA kits.



1 Kit

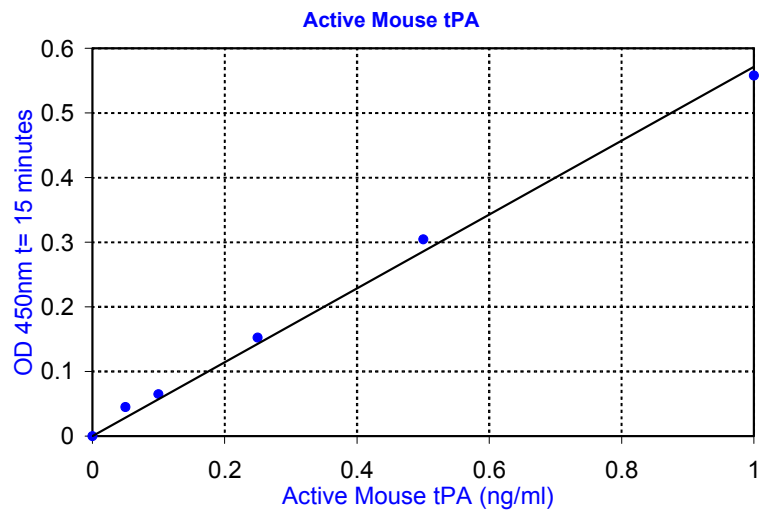
5 Kits

## 8.12 MOUSE TPA ELISA KITS

## IMTPAKT

## Active mouse tPA functional assay

The sensitive measurement of functionally active murine tPA is easily performed with this 96 well strip format ELISA kit. Functionally active tPA present in plasma, serum, culture media or tissue extracts will bind to functionally active PAI-1 provided for coating on the microtiter plate (patent pending). Only free active enzyme will react with the PAI-1 on the plate. Inactive or complexed enzyme will not be detected. After appropriate washing steps, anti mouse tPA primary antibody binds to the tPA. Excess antibody is washed away, and bound antibody, which is proportional to the original active tPA present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified mouse tPA. All reagents and standards are provided in these ELISA kits.



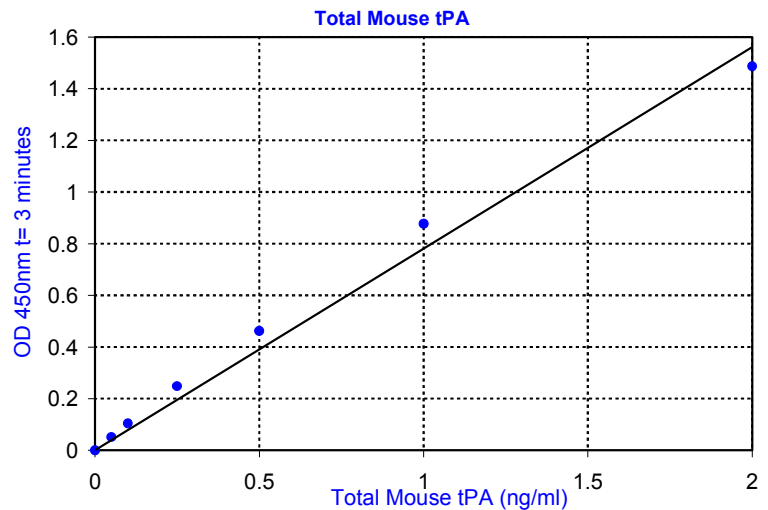
1 Kit

5 Kits

## IMTPAKT-TOT

## Total mouse tPA antigen assay

The sensitive measurement of total murine tPA antigen is easily performed with this 96 well strip format ELISA kit. Mouse tPA present in plasma, serum, culture media or tissue extracts binds to the capture antibody coated on the micro titer plate. Free and complexed tPA will bind to the capture antibody. After appropriate washing steps, anti mouse tPA primary antibody binds to the tPA. Excess antibody is washed away, and bound antibody, which is proportional to the original total tPA present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified mouse tPA. All reagents and standards are provided in these ELISA kits.



1 Kit

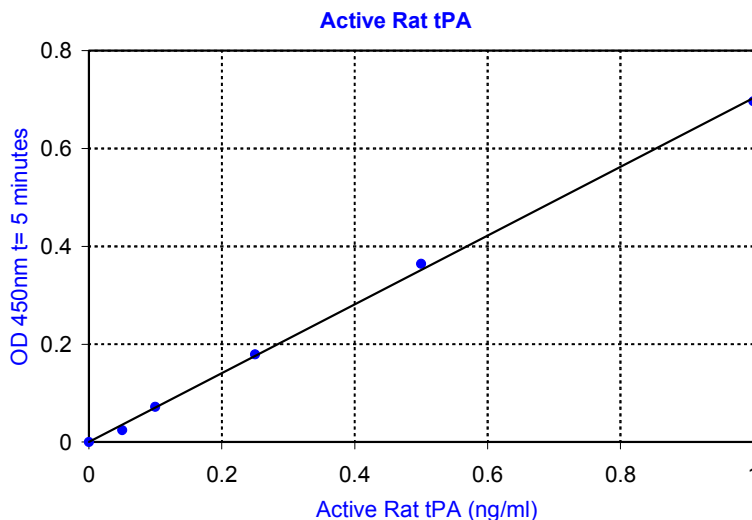
5 Kits

## 8.13 RAT TPA ELISA KITS

### IRTPAKT

#### Active rat tPA functional assay

The sensitive measurement of functionally active rat tPA is easily performed with this 96 well strip format ELISA kit. Functionally active tPA present in plasma, serum, culture media or tissue extracts will bind to functionally active PAI-1 provided for coating on the microtiter plate (patent pending). Only free active enzyme will react with the PAI-1 on the plate. Inactive or complexed enzyme will not be detected. After appropriate washing steps, anti rat tPA primary antibody binds to the tPA. Excess antibody is washed away, and bound antibody, which is proportional to the original active tPA present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified rat tPA. All reagents and standards are provided in these ELISA kits.



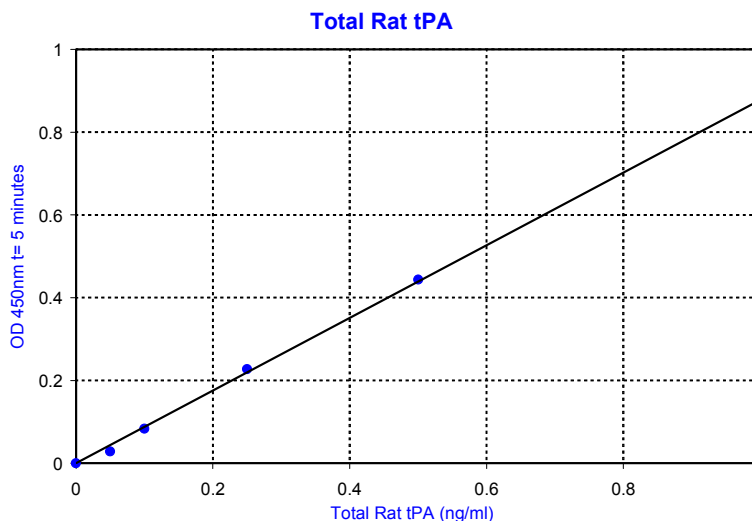
1 Kit

5 Kits

### IRTPAKT-TOT

#### Total rat tPA antigen assay

The sensitive measurement of total rat tPA antigen is easily performed with this 96 well strip format ELISA kit. Rat tPA present in plasma, serum, culture media or tissue extracts binds to the capture antibody coated on the micro titer plate. Free and complexed tPA will bind to the capture antibody. After appropriate washing steps, anti rat tPA primary antibody binds to the tPA. Excess antibody is washed away, and bound antibody, which is proportional to the original total tPA present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified rat tPA. All reagents and standards are provided in these ELISA kits.



1 Kit

5 Kits

## Urokinase (uPA)

**Mr:** 54 kDa (HMW form); 31 kDa (LMW form)

**Synthesis:** Endothelial cells, kidney epithelial cells

**Plasma concentration:** 2 ng/ml

Urinary-type plasminogen activator (uPA) is a glycosylated serine protease that is present in a low molecular weight (LMW) and a high molecular weight (HMW) form with a MW of 31 kDa and 55 kDa, respectively. Urokinase is highly selective in that it is reactive with a number of synthetic substrates yet the only physiological substrate known is plasminogen, which it rapidly converts into plasmin. Urokinase is inherently involved in the fibrinolytic cascade through its activation of plasminogen to plasmin and is inhibited rapidly by the major modulator of fibrinolysis, PAI-1. uPA has received much focus because of its association with the uPAR receptor. uPAR enhances the efficiency of plasminogen activation and promotes tumor metastasis and invasion. It is also involved in triggering the proteolytic cascade of matrix metalloproteinases (MMP) that degrade collagen.

### Technical Info

Innovative Research Inc. urokinase is provided in a sodium acetate buffer at pH 5.0 that limits autoproteolysis and provides stability for greater than 1 year when stored at -70°C. The extinction coefficients of LMW and HMW uPA are 1.32 mg<sup>-1</sup> ml<sup>-1</sup> and 1.36 mg<sup>-1</sup> ml<sup>-1</sup>, respectively.

## 9.1 HUMAN UROKINASE

### IUPA-HTC

#### Human HMW urokinase, recombinant

Produced recombinantly in insect cells. For plasminogen activation and receptor binding studies.

0.1 mg

1.0 mg

### IUPA-HTC-HRP

#### Human HMW urokinase, HRP conjugate

Horseradish peroxidase conjugated two-chain urokinase.

0.1 mg

1.0 mg

### IUPA-HTC-FITC

#### Human HMW urokinase, fluorescein labeled

Fluorescein labeled two-chain urokinase.

0.1 mg

1.0 mg

### IUPA-LMW

#### Human LMW urokinase

Prepared from recombinant human uPA as the single-chain LMW form. For plasminogen activation studies.

0.1 mg

1.0 mg

### IUPA-LMW-HRP

#### Human LMW urokinase, HRP conjugate

Horseradish peroxidase conjugated single-chain urokinase.

0.1 mg

1.0 mg

**IUPA-LMW-FITC** Human LMW urokinase, fluorescein labeled

Fluorescein labeled single-chain urokinase.

0.1 mg 1.0 mg

**IHATF** Amino terminal fragment of human uPA

Autoproteolysis of HMW urokinase results in LMW urokinase and an 19.5 kDa amino terminal fragment (ATF). ATF has been shown to inhibit proliferation and invasion of cancer cells by binding to uPA receptor (1). Innovative Research ATF is 100% free of HMW and LMW urokinase by western blot.

**References**

1. Luparello C, Del Rosso M. (1996) Eur J Cancer. 32A:702-707.

0.1 mg 1.0 mg

**9.2 MOUSE UROKINASE****IMUPA** Active mouse urokinase, recombinant HMW

Active two-chain HMW mouse urokinase, recombinantly produced in insect cells.

0.05 mg 0.1 mg

**IMUPA-LMW** Active mouse urokinase, recombinant LMW

Prepared from recombinant mouse uPA as the single-chain LMW form.

0.1 mg

**IMUPA-BIO** Mouse HMW urokinase, biotin labeled

Biotin labeled active two-chain HMW mouse urokinase.

0.05 mg 0.1 mg

**IMUPA-FITC** Mouse HMW urokinase, fluorescein labeled

Fluorescein labeled active two-chain HMW mouse urokinase.

0.05 mg 0.1 mg

**IMATF** Amino terminal fragment of mouse urokinase

Prepared by autoproteolysis of recombinant HMW mouse uPA.

0.1 mg

### 9.3 MOUSE UROKINASE RECEPTOR

ISMUPAR-HIS Soluble mouse urokinase receptor, His tagged

Soluble form of mouse urokinase receptor, recombinantly produced in insect cells. Contains a poly-histidine tag for use in purification. This mouse uPAR demonstrates preferential binding to mouse urokinase over human urokinase coated on an ELISA plate.

0.1 mg 1.0 mg

### 9.4 RAT UROKINASE

IRUPA Active rat urokinase, recombinant

Active two-chain HMW rat urokinase, recombinantly produced in insect cells.

0.05 mg 0.1 mg

### 9.5 RABBIT UROKINASE

IRbUPA Active rabbit urokinase, recombinant

Active two-chain HMW rabbit urokinase, recombinantly produced in insect cells.

0.05 mg 0.1 mg

### 9.6 DOG UROKINASE

IDUPA Active dog urokinase, recombinant

Active two-chain HMW canine urokinase, recombinantly produced in insect cells.

0.05 mg 0.1 mg

### 9.7 POLYCLONAL ANTIBODIES TO HUMAN UPA

IASHUPA Rabbit anti human uPA antiserum

Polyclonal antiserum (host rabbit).

1.0 ml 10 ml

IASHUPA-GF Rabbit anti human uPA IgG fraction

Polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.

1.0 mg 10 mg

<b>IASHUPA-GF-BIO</b>	<b>Rabbit anti human uPA IgG fraction, biotin labeled</b>
	Biotin labeled polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.
	1.0 mg                      10 mg
<b>IASHUPA-GF-FITC</b>	<b>Rabbit anti human uPA IgG fraction, fluorescein labeled</b>
	Fluorescein labeled polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.
	1.0 mg                      10 mg
<b>IASHUPA-GF-HT</b>	<b>Rabbit anti human uPA affinity purified high titer IgG fraction</b>
	Polyclonal antibody (host rabbit). Affinity purified by immobilized uPA.
	0.1 mg                      1.0 mg
<b>IASHATF-GF-HT</b>	<b>Rabbit anti human amino terminal fragment of uPA, high titer IgG</b>
	Polyclonal antibody (host rabbit). Affinity purified by immobilized ATF.
	0.02 ml

## 9.8 POLYCLONAL ANTIBODIES TO MOUSE UPA

<b>IASMUPA</b>	<b>Rabbit anti mouse uPA antiserum</b>
	Polyclonal antiserum (host rabbit).
	1.0 ml                      10 ml
<b>IASMUPA-GF</b>	<b>Rabbit anti mouse uPA IgG fraction</b>
	Polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.
	1.0 mg                      10 mg
<b>IASMUPA-GF-BIO</b>	<b>Rabbit anti mouse uPA IgG fraction, biotin labeled</b>
	Biotin labeled polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.
	1.0 mg                      10 mg
<b>IASMUPA-GF-FITC</b>	<b>Rabbit anti mouse uPA IgG fraction, fluorescein labeled</b>
	Fluorescein labeled polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.
	1.0 mg                      10 mg
<b>IASMUPA-GF-HT</b>	<b>Rabbit anti mouse uPA affinity purified high titer IgG fraction</b>
	Polyclonal antibody (host rabbit). Affinity purified by immobilized uPA.
	0.1 mg                      1.0 mg



**9.13 POLYCLONAL ANTIBODIES TO MOUSE UPAR**

**IASMUPAR** Sheep anti mouse urokinase receptor antiserum

Polyclonal antiserum (host sheep).

1.0 ml 10 ml

**IASMUPAR-GF** Sheep anti mouse urokinase receptor IgG fraction

Polyclonal antibody (host sheep). IgG fraction purified by immobilized Protein G.

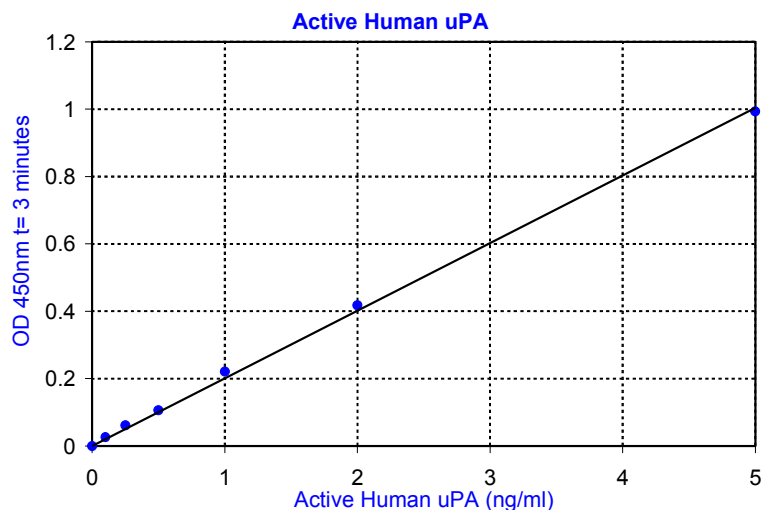
1.0 mg 10 mg

## 9.14 HUMAN UPA ELISA KITS

IHUPAKT

Active human uPA functional assay

The sensitive measurement of functionally active human uPA is easily performed with this 96 well strip format ELISA kit. Functionally active uPA present in plasma, serum, culture media or tissue extracts will bind to functionally active PAI-1 provided for coating on the microtiter plate (patent pending). Only free active enzyme will react with the PAI-1 on the plate. Inactive or complexed enzyme will not be detected. After appropriate washing steps, anti human uPA primary antibody binds to the uPA. Excess antibody is washed away, and bound antibody, which is proportional to the original active uPA present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified human HMW tc uPA. All reagents and standards are provided in these ELISA kits.



1 Kit

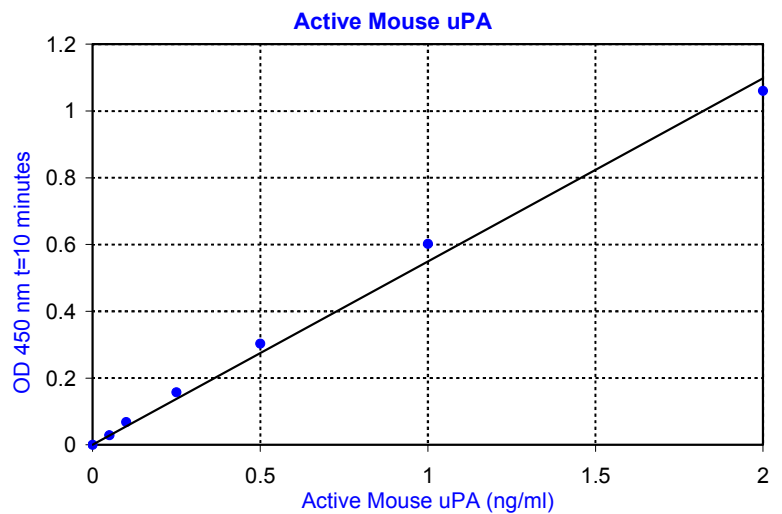
5 Kits

## 9.15 MOUSE uPA ELISA KITS

### IMUPAKT

#### Active mouse uPA functional assay

The sensitive measurement of functionally active murine uPA is easily performed with this 96 well strip format ELISA kit. Functionally active uPA present in plasma, serum, culture media or tissue extracts will bind to functionally active PAI-1 provided for coating on the microtiter plate (patent pending). Only free active enzyme will react with the PAI-1 on the plate. Inactive or complexed enzyme will not be detected. After appropriate washing steps, anti mouse uPA primary antibody binds to the uPA. Excess antibody is washed away, and bound antibody, which is proportional to the original active uPA present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified mouse uPA. All reagents and standards are provided in these ELISA kits.



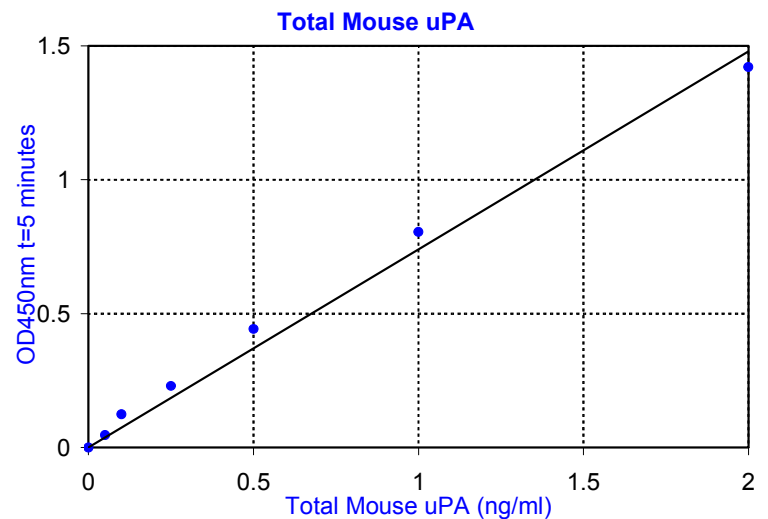
1 Kit

5 Kits

### IMUPAKT-TOT

#### Total mouse uPA antigen assay

The sensitive measurement of total murine uPA antigen is easily performed with this 96 well strip format ELISA kit. Mouse uPA present in plasma, serum, culture media or tissue extracts binds to the capture antibody coated on the micro titer plate. Free and complexed uPA will bind to the capture antibody. After appropriate washing steps, anti mouse uPA primary antibody binds to the uPA. Excess antibody is washed away, and bound antibody, which is proportional to the original total uPA present in the sample, is then reacted with a secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified mouse uPA. All reagents and standards are provided in these ELISA kits.



1 Kit

5 Kits



## 10.4 RAT VITRONECTIN

### IRVN Rat multimeric vitronectin

Prepared from fresh rat plasma using urea as a denaturant.

0.1 mg 1.0 mg

## 10.5 RABBIT VITRONECTIN

### IRbVN Rabbit multimeric vitronectin

Prepared from fresh rabbit plasma using urea as a denaturant.

0.1 mg 1.0 mg

## 10.6 PORCINE VITRONECTIN

### IPVN Porcine multimeric vitronectin

Prepared from fresh porcine (pig) plasma using urea as a denaturant.

0.1 mg 1.0 mg

## 10.7 BOVINE VITRONECTIN

### IBVN Bovine multimeric vitronectin

Prepared from fresh bovine plasma using urea as a denaturant.

0.1 mg 1.0 mg

## 10.8 POLYCLONAL ANTIBODIES TO HUMAN VITRONECTIN

### IASHVN Rabbit anti human vitronectin antiserum

Polyclonal antiserum (host rabbit).

1.0 ml 10 ml

### IASHVN-GF Rabbit anti human vitronectin IgG fraction

Polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.

1.0 mg 10 mg

## 10.9 POLYCLONAL ANTIBODIES TO MOUSE VITRONECTIN

### IASMVN Rabbit anti mouse vitronectin antiserum

Polyclonal antiserum (host rabbit).

1.0 ml 10 ml

### IASMVN-GF Rabbit anti mouse vitronectin IgG fraction

Polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.

1.0 mg 10 mg

## 10.10 MONOCLONAL ANTIBODIES TO HUMAN VITRONECTIN

### IHAVN1D144 Inhibitory mouse monoclonal to human vitronectin

Inhibitory monoclonal antibody produced in a vitronectin knockout mouse (patent pending). This antibody blocks smooth muscle and endothelial cell adhesion to vitronectin. Purified by immobilized Protein A. IgG1k class.

1.0 mg 10 mg

### IHAVN1E934 Mouse monoclonal to human vitronectin for ELISA & WB

Non-inhibitory monoclonal antibody produced in a vitronectin knockout mouse. Will detect monomeric and multimeric human vitronectin in ELISA, and monomeric vitronectin under non-reducing condition in western blot. Purified by immobilized Protein A. IgG1k class.

1.0 mg 10 mg

### IHAVN1H820 Mouse monoclonal to human vitronectin for ELISA & WB

Non-inhibitory monoclonal antibody produced in a vitronectin knockout mouse. Will detect monomeric and multimeric human vitronectin in ELISA, and monomeric vitronectin under non-reducing condition in western blot. Purified by immobilized Protein A. IgG1k class.

1.0 mg 10 mg

### IHAVN2C323 Mouse monoclonal to human vitronectin for WB & ELISA

Non-inhibitory monoclonal antibody produced in a vitronectin knockout mouse. Will detect monomeric vitronectin under reducing and non-reducing condition in western blot, and monomeric vitronectin in ELISA. Purified by immobilized Protein A. IgG1k class.

1.0 mg 10 mg

### IHAVN4A132 Mouse monoclonal to human vitronectin for IHC & WB

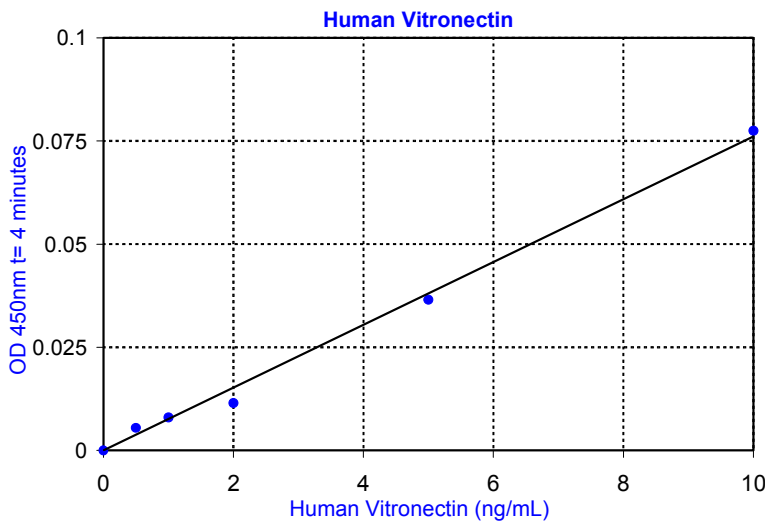
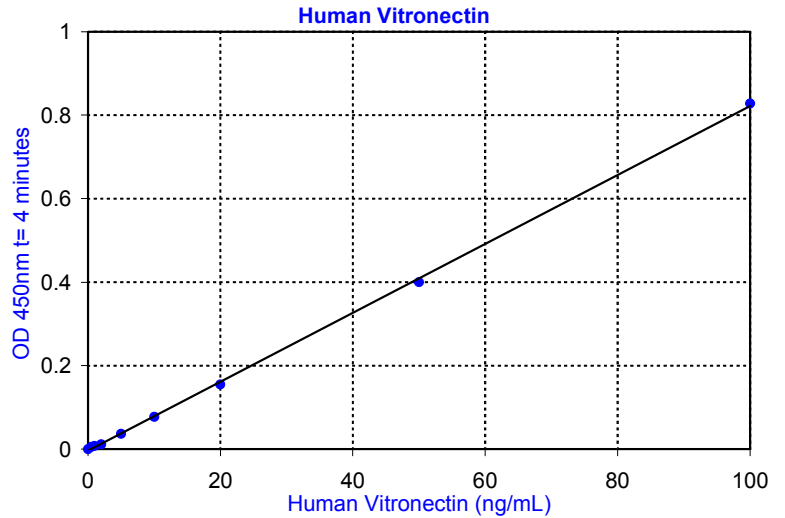
Non-inhibitory monoclonal antibody produced in a vitronectin knockout mouse. Will detect vitronectin in immunohistochemistry of tissue sections and monomeric vitronectin under reducing and non-reducing condition in western blot. Purified by immobilized Protein A. IgG1k class.

1.0 mg 10 mg

## 10.11 HUMAN VITRONECTIN ELISA KIT

### IHVNKT Human vitronectin total antigen assay

The sensitive measurement of total human vitronectin antigen is easily performed with this 96 well strip format ELISA kit. Human vitronectin present in plasma, serum, culture media or tissue extracts binds to the capture antibody coated on the microtiter plate. After appropriate washing steps, anti-human vitronectin primary antibody binds to the captured vitronectin. An HRP detection system using TMB substrate is used for color development at 450nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified human vitronectin. All reagents and standards are provided in these ELISA kits.



Using this assay, values for plasma vitronectin in normal individuals were determined to be 127.5 +/- 13.1 ug/ml (1). Vascular samples from the saphenous vein, mammary artery, and human adipose tissue were also assayed for vitronectin, with values ranging from 5-40 ug/mg.

**References**

1. Crandall, D.L. et. al. (2000) J Clin Endocrinol Metab. 85:2609-2614.

1 Kit

5 Kits

## Fibronectin

**Mr:** 500 kDa

**Synthesis:** liver

**Plasma concentration:** 350 ng/ml

Human fibronectin is an adhesive glycoprotein found in the extracellular matrix and in plasma (1). Fibronectin is composed of two nearly identical polypeptide chains linked by a pair of disulfide bonds. Each subunit is organized into a variety of structural domains containing specific binding sites for cells, collagen, fibrin and glycosaminoglycans. Fibronectin also participates in complex interactions with other macromolecules to influence cellular properties including adhesion, morphology, migration, hemostasis and oncogenic transformation. The human fibronectin provided is suitable to promote the adhesion and propagation of cells in vitro when used to coat cell culture surfaces, including plasticware, glassware and microcarrier beads.

### Technical Info

Innovative Research fibronectin is purified from plasma and is provided in physiological buffer where it is stable at -20°C for up to one year. Repeated freeze/thaw cycles should be avoided. Protein concentration is determined spectrophotometrically at 280 nm using an extinction coefficient of 1.3 (0.1%). The purity is greater than 95% as determined by SDS-PAGE.

### References

1. Moser, T.L. et al. (1993) J. Biol. Chem. 268:18917-18923.

## 11.1 HUMAN FIBRONECTIN

### IHFBN

#### Human fibronectin

Prepared from fresh human plasma. Ideal reagent for tissue culture studies and protein-protein interactions.

1.0 mg

10 mg

## 11.2 MOUSE FIBRONECTIN

### IHFBN

#### Mouse fibronectin

Prepared from fresh mouse plasma. Ideal reagent for tissue culture studies and protein-protein interactions.

1.0 mg

10 mg

## 11.3 HAMSTER FIBRONECTIN

### IHMFBN

#### Hamster fibronectin

Prepared from fresh hamster plasma. Ideal reagent for tissue culture studies and protein-protein interactions.

1.0 mg

10 mg





## 12.4 RABBIT PLASMINOGEN AND PLASMIN

### IRbPLG Rabbit plasminogen

Prepared from fresh rabbit plasma by lysine affinity chromatography.

1.0 mg 10 mg

### IRbPLM Rabbit plasmin

Prepared from plasminogen by activation with immobilized human uPA.

1.0 mg 10 mg

## 12.5 RAT PLASMINOGEN AND PLASMIN

### IRPLG Rat plasminogen

Prepared from fresh rat plasma by lysine affinity chromatography.

1.0 mg 10 mg

### IRPLM Rat plasmin

Prepared from plasminogen by activation with immobilized human uPA.

1.0 mg 10 mg

## 12.6 CHICKEN PLASMINOGEN AND PLASMIN

### ICKPG Chicken plasminogen

Prepared from fresh chicken plasma by lysine affinity chromatography.

1.0 mg 10 mg

### ICKPLM Chicken plasmin

Prepared from plasminogen by activation with immobilized human uPA.

1.0 mg 10 mg

## 12.7 BOVINE PLASMINOGEN AND PLASMIN

### IBPLG Bovine plasminogen

Prepared from fresh bovine plasma by lysine affinity chromatography.

1.0 mg 10 mg

### IBPLM Bovine plasmin

Prepared from plasminogen by activation with immobilized human uPA.

1.0 mg 10 mg

## 12.8 HUMAN ANTIPLASMIN

The primary physiological inhibitor of plasmin is alpha-2-plasmin inhibitor (antiplasmin). The binding of antiplasmin to plasmin(ogen) plays a critical role in fibrinolysis. The binding of circulating free plasmin(ogen) by antiplasmin prevents both zymogen and enzyme from binding to fibrin and ultimately initiating fibrinolysis. Antiplasmin already crosslinked to fibrin prevents plasmin catalytic action on local sites of fibrin deposition as well as impeding subsequent activation of plasminogen via plasminogen activator. Antiplasmin is found in plasma at about 70 ug/ml.

### IHA2AP Human alpha-2-antiplasmin

Prepared from human plasma.

1.0 mg 10 mg

## 12.9 POLYCLONAL ANTIBODIES TO HUMAN ANTIPLASMIN

### IASHA2AP Rabbit anti human antiplasmin antiserum

Polyclonal antiserum (host rabbit).

1.0 ml 10 ml

### IASHA2AP-GF Rabbit anti human antiplasmin IgG fraction

Polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.

1.0 mg 10 mg

## 12.10 MONOCLONAL ANTIBODIES TO HUMAN ANTIPLASMIN

### IHAP1E94 Mouse monoclonal to human antiplasmin

Non-inhibitory monoclonal antibody produced in an antiplasmin knockout mouse. Purified by immobilized Protein A. IgG1 class.

1.0 mg

**12.11 MOUSE ANTIPLASMIN**

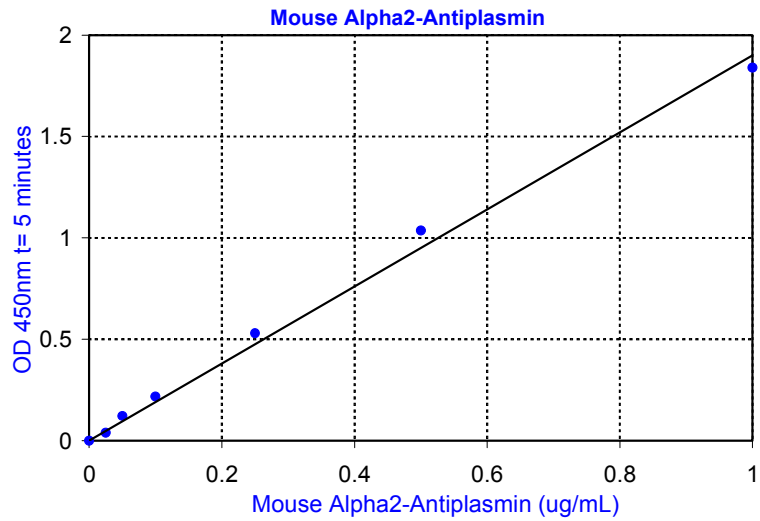
**IMA2AP-FLAG** Mouse alpha-2-antiplasmin, recombinant, FLAG tagged

Recombinantly produced in insect cells by FLAG affinity.

0.1 mg

**IMA2APKT** Active mouse antiplasmin functional assay

The sensitive measurement of functionally active mouse alpha2-antiplasmin is easily performed with this 96 well strip format ELISA kit. Functionally active antiplasmin present in plasma, serum, culture media or tissue extracts reacts with plasmin provided for coating onto a micro titer plate. Complexed antiplasmin will not bind to the plate and will not be detected. After appropriate washing steps, anti mouse alpha2-antiplasmin primary antibody binds to the antiplasmin. Excess antibody is washed away, and bound antibody, which is proportional to the original active antiplasmin present in the plasma sample, is then reacted with the secondary antibody conjugated to HRP. TMB substrate is used for color development at 450 nm. A standard calibration curve is prepared along with the samples to be measured using dilutions of purified antiplasmin in plasma. All reagents and standards are provided in these ELISA kits.



1 Kit

5 Kits

**12.12 POLYCLONAL ANTIBODIES TO MOUSE ANTIPLASMIN****IASMA2AP Rabbit anti mouse antiplasmin antiserum**

Polyclonal antiserum (host rabbit).

1.0 ml 10 ml

**IASMA2AP-GF Rabbit anti mouse antiplasmin IgG fraction**

Polyclonal antibody (host rabbit). IgG fraction purified by immobilized Protein A.

1.0 mg 10 mg

**12.13 MONOCLONAL ANTIBODIES TO MOUSE ANTIPLASMIN****IMAP25C3 Mouse monoclonal to mouse antiplasmin**

Non-inhibitory monoclonal antibody produced in an antiplasmin knockout mouse. Purified by immobilized Protein A. IgG1k class.

1.0 mg

**IMAP4H9 Inhibitory mouse monoclonal to mouse antiplasmin**

Inhibitory monoclonal antibody produced in an antiplasmin knockout mouse. Purified by immobilized Protein A. IgG1k class.

1.0 mg

**IMAP27C9 Inhibitory mouse monoclonal to mouse antiplasmin**

Inhibitory monoclonal antibody produced in an antiplasmin knockout mouse. Purified by immobilized Protein A. IgG1k class.

1.0 mg

## Receptor Associated Protein (RAP)

**Mr:** 38 kDa

**Synthesis:** endoplasmic reticulum

RAP binds with high affinity to certain members of the low-density lipoprotein (LDL) receptor family such as LDL receptor-related protein (LRP), gp330/megalin, and the very low-density lipoprotein (VLDL) receptor and, once bound to these receptors, antagonizes their ligand binding ability. Despite the presence of a putative signal sequence on RAP, this molecule is not secreted but remains cell-associated. RAP is contained primarily within the endoplasmic reticulum and Golgi compartments, with only a trace found at the cell surface and within the endosomal compartments. Genetic deletion of RAP in mice has no effect on LRP mRNA levels but does lead to incomplete processing of LRP in the brain and liver resulting in decreased LRP antigen levels in these organs.

### Technical Info

The human RAP provided by Innovative Research is expressed recombinantly in *Escherichia coli*. RAP is provided as a frozen solution in a TBS buffer where it is stable at -70°C indefinitely. The protein concentration is determined spectrophotometrically with an extinction coefficient of 0.93 (0.1%). The solubility is at least 3 mg/ml. The purity is greater than 95% by SDS-PAGE.

### References for Monoclonal Antibodies

1. Strickland, D.K. et al. (1990) *J. Biol. Chem.* 265:17401-17404. Western blotting of purified human LRP.
2. Coukos, G. et al. (1994) *American J. Pathology* 144:383-392. Histochemical localization of LRP in human placental tissue, and in cultured trophoblasts.
3. Rebeck, G.W. et al. (1993) *Neuron* 11:575-580. Histochemical localization of LRP in human brain tissue.
4. Medh, J.D. et al. (1995) *J. Biol. Chem.* 270:536-540. Solid-phase assay of human RAP.
5. Ruiz, J. et al. (2005) *J. Lipid Res.* 46:1721-1731. ELISA and western blotting of human VLDL receptor.

## 13.1 HUMAN RAP

### IRAP

#### Human RAP

Made as a GST fusion protein and cleaved with thrombin. Suitable to block receptor function in uptake assays. Contains endotoxin which might trigger signaling events.

0.5 mg

1.0 mg

### IRAP-LE

#### Low Endotoxin Human RAP

Made as a GST fusion protein and cleaved with thrombin. This preparation of Receptor Associated Protein is purified to lower levels of endotoxin. Low endotoxin RAP is suitable for experiments involving signaling events and phosphorylation studies, which may be triggered by endotoxin.

0.5 mg

1.0 mg

**13.2 MONOCLONAL ANTIBODIES TO HUMAN RAP****IMA-7F1** Mouse monoclonal to human RAP

Monoclonal antibody to human RAP. No cross-reaction with mouse or rabbit RAP. Purified by immobilized Protein A. IgG1 class.

1.0 mg

**IMA-7F1-BIO** Mouse monoclonal to human RAP, biotin labeled

Biotin labeled monoclonal antibody to human RAP. Purified by immobilized Protein A. IgG1 class.

0.1 mg 1.0 mg

**IMA-7F1-FITC** Mouse monoclonal to human RAP, fluorescein labeled

Fluorescein labeled monoclonal antibody to human RAP. Purified by immobilized Protein A. IgG1 class.

0.1 mg 1.0 mg

**13.3 MONOCLONAL ANTIBODIES TO HUMAN LRP****IMA-5A6** Mouse monoclonal to human 85 kDa LRP

Monoclonal antibody to human 85 kDa light chain of LRP. Cross-reacts with rabbit and mouse LRP. Useful for immunohistochemistry, flow cytometry and western blots. Purified by immobilized Protein A. IgG2b class.

1.0 mg

**IMA-5A6-BIO** Mouse monoclonal to human 85 kDa LRP, biotin labeled

Biotin labeled monoclonal antibody to human 85 kDa light chain of LRP. Purified by immobilized Protein A. IgG2b class.

0.1 mg 1.0 mg

**IMA-5A6-FITC** Mouse monoclonal to human 85 kDa LRP, fluorescein labeled

Fluorescein labeled monoclonal antibody to human 85 kDa light chain of LRP. Purified by immobilized Protein A. IgG2b class.

0.1 mg 1.0 mg



**13.3 MONOCLONAL ANTIBODIES TO HUMAN VLDL RECEPTOR****IMA-5F3**      **Mouse monoclonal to human VLDL redeptor**

Monoclonal antibody produced in a VLDL receptor knockout mouse. Useful for ELISA and western blot under reducing and non-reducing conditions. Purified by immobilized Protein A. IgG1 class.

1.0 mg

**IMA-1H5**      **Mouse monoclonal to human VLDL redeptor**

Monoclonal antibody produced in a VLDL receptor knockout mouse. Useful for ELISA. Binds to an epitope on the C-terminus of VLDL receptor and blocks apoE4 binding. Purified by immobilized Protein A. IgG1 class.

1.0 mg

**IMA-1H10**      **Mouse monoclonal to human VLDL redeptor**

Monoclonal antibody produced in a VLDL receptor knockout mouse. Useful for ELISA and western blot under non-reducing conditions. Binds to an epitope on the C-terminus of VLDL receptor and blocks apoE4 binding. Purified by immobilized Protein A. IgG1 class.

1.0 mg

## Factor XI

**Mr:** 160 kDa

**Synthesis:** liver

**Plasma concentration:** 4-5 mg/ml

Human Factor XI is a glycoprotein with a monomeric MW of ~80 kDa present in normal plasma at a circulating concentration of 30 nM (1,2). It is unique among all the blood coagulation factors in that it exists as a disulfide-linked homodimer with a MW of 160 kDa. Factor XI is required for normal hemostasis and is a serine protease zymogen that is activated to Factor XIa through cleavage of the Arg369-Lys370 bond by Factor XIIa. Upon activation and in the presence of Ca<sup>2+</sup>, Factor XIa will cleave its physiological substrate Factor IX to IXa through cleavage of two specific bonds releasing the 11 kDa activation peptide from the precursor. Factor XI is found in plasma non-covalently bound to HMW kininogen and will strongly adhere to anionic surfaces such as glass, celite and kaolin requiring all glassware to be siliconized. Factor XIa may be inhibited by protease nexin II (PNII) and LMW platelet inhibitor (PIXI) (1,2).

### Technical Info

Factor XI is purified from fresh frozen human plasma tested negative for infectious agents. The extinction coefficient of Factor XI is 1.34 mg<sup>-1</sup> ml<sup>-1</sup> and it has a pl of 8.6 (1). The protein product is >98% pure as determined by SDS PAGE and specific clotting activity.

### References

1. Kurachi, K. et al. (1981) *Methods Enzymol.* 80:211-220.
2. Walsh, P.N. et al. (1993) *Methods Enzymol.* 222:65-96.

## 14.1 HUMAN FACTOR XI

IHF<sub>XI</sub>                      Human coagulation Factor XI

Prepared from fresh human plasma using several chromatographic steps.

0.1 mg

1.0 mg

## Antithrombin III

**Mr:** 58 kDa

**Synthesis:** liver

Antithrombin III (ATIII) is a single-chain glycoprotein which is considered to be the main physiological inhibitor of thrombin and Factor Xa. In the presence of heparin, the inhibition of thrombin and Factor Xa is enhanced 300 to 1,000 fold.

### Technical Info

Innovative Research antithrombin migrates as a single band on 10% SDS PAGE and is fully complexible with thrombin. The protein is stable for greater than 3 years at -70°C and the extinction coefficient is 0.66 mg<sup>-1</sup> ml<sup>-1</sup>.

### 15.1 HUMAN ANTITHROMBIN III

IHATIII [Human Antithrombin III](#)

Prepared from fresh human plasma using several chromatographic steps.

1.0 mg

10 mg

### 15.2 RAT ANTITHROMBIN III

IRATIII [Rat Antithrombin III](#)

Prepared from fresh rat plasma using several chromatographic steps.

1.0 mg

10 mg

### 15.3 MOUSE ANTITHROMBIN III

IMATIII [Mouse Antithrombin III](#)

Prepared from fresh mouse plasma using several chromatographic steps.

1.0 mg

10 mg

### 15.4 RABBIT ANTITHROMBIN III

IRbATIII [Rabbit Antithrombin III](#)

Prepared from fresh rabbit plasma using several chromatographic steps.

1.0 mg

10 mg

## Fibrinogen

**Mr:** 330 kDa

**Synthesis:** liver

**Plasma concentration:** 2-3 mg/ml

Soluble fibrinogen is cleaved by thrombin into insoluble fibrin. Fibrin monomers spontaneously polymerize into a network as the final step in the blood coagulation cascade.

### Technical Info

Innovative Research fibrinogen is purified from fresh frozen plasma using a combination of salt precipitations, and affinity and immunoaffinity resins. In a functional assay this protein is greater than 95% clottable and is homogeneous on 4-20% SDS-PAGE gels. The extinction coefficient of fibrinogen is 1.51 mg<sup>-1</sup> ml<sup>-1</sup>.

## 16.1 HUMAN FIBRINOGEN

**IFIB** Human fibrinogen, plasminogen depleted

Prepared from human plasma, depleted of plasminogen and lyophilized.

25 mg

## 16.2 ANIMAL FIBRINOGEN

**IMFBGN** Mouse fibrinogen

Prepared from fresh mouse plasma using several chromatographic steps.

1.0 mg

**IRFBGN** Rat fibrinogen

Prepared from fresh rat plasma using several chromatographic steps.

1.0 mg

**IRbFBGN** Rabbit fibrinogen

Prepared from fresh rabbit plasma using several chromatographic steps.

25 mg

**IBFBGN** Bovine fibrinogen

Prepared from fresh bovine plasma using several chromatographic steps.

25 mg

**IDGFBGN** Dog fibrinogen

Prepared from fresh dog plasma using several chromatographic steps.

1.0 mg



## Elastase

### 17.1 HUMAN NEUTROPHIL ELASTASE

**Mr:** 30 kDa

**Synthesis:** neutrophils

The primary role of neutrophils is to destroy any foreign particles, either by phagocytosis or by release of bacteriostatic agents. Neutrophils contain high concentrations of the serine proteinase neutrophil elastase that is stored in intracellular vacuoles termed the azurophilic granules. This proteinase is a major protein constituent of neutrophils, comprising around 1-3 pg per neutrophil. Their primary role is to digest any pathogens that the neutrophil has phagocytosed.

#### Technical Info

The elastase provided by Innovative Research is chromatographically purified from Purulent Human Sputum. The lyophilized, salt-free, soluble powder is stable for over a year when stored at 5°C. The protein is greater than 95% pure by SDS-PAGE and is free of cathepsin G, MPO and lysozyme. 800-900 units per mg of protein on the substrate Suc-Al-Al-Al-pNA. 15000-19000 units per mg protein on the substrate MeO-Suc-Al-Al-Pro-Val-pNA. One unit will hydrolyze 1 µmole of substrate per minute at pH 7.5 and 25° C.

<b>IHNE</b>	<b>Human neutrophil elastase</b>
	0.5 mg                      1.0 mg

### 17.2 PORCINE, MOUSE, AND RAT PANCREATIC ELASTASE

**Mr:** 25 kDa

**Synthesis:** pancreas

#### Technical Info

Chromatographically prepared from the euglobin fraction of pancreas by the method of Lewis et al. (1) then twice crystallized. Supplied as a lyophilized, salt-free, soluble powder. The protein is stable 9-12 months when stored at 5°C and does not contain trypsin or chymotrypsin.

#### References

1. Lewis, U.J. et al. (1956) J. Biol. Chem. 22:705.

<b>IPPE</b>	<b>Porcine pancreatic elastase</b>
	0.1 mg

<b>IMPE</b>	<b>Mouse pancreatic elastase</b>
	0.1 mg

<b>IRPE</b>	<b>Rat pancreatic elastase</b>
	0.1 mg

**17.3 MYELOPEROXIDASE**

**Mr:** 59 kDa

**Synthesis:** neutrophils

**Technical Info**

Myeloperoxidase purified from leucocytes of purulent human sputum which is >98% pure. It is a lysosomal protein stored in azurophilic granules of the neutrophil which produces hypochlorous acid from hydrogen peroxide and chloride anion during the neutrophil's respiratory burst. Supplied as a lyophilized, salt-free, green soluble powder which is stable for over a year when stored at 5°C. 150 -160 units per mg of protein. 1 unit will decompose 1  $\mu$ mole of  $H_2O_2$  per minute at pH 7.0 and 25°C using 4-amino-antipyrine as hydrogen donor.

**IMPO**

**Myeloperoxidase**

1.0 mg

## Ecotin

**Mr:** 16 kDa (Monomer)

Ecotin is a serine protease inhibitor that is found in the periplasm of *Escherichia coli*. It has a very broad range of inhibition including the pancreatic serine proteases trypsin and chymotrypsin, human leukocyte and porcine elastase and rat mast cell chymase. It has been described as a potent, tight-binding, reversible inhibitor of Factor Xa alluding to its potent anticoagulant activity forming stoichiometric 1:1 complexes with a  $K_i$  of 54 pM and a  $K_a$  of  $1.35 \times 10^6 M^{-1} s^{-1}$ . Ecotin does not inhibit the human plasma proteases thrombin, tissue factor-factor VIIa, Factor XIa, Protein C, plasmin or tPA.

### Technical Info

The purity of Innovative Research ecotin is at least 98% as determined by SDS-PAGE.

### References

1. Seymour, J.L. et al. (1994) *Biochemistry* 33:3949-3958.

## 18.1 ECOTIN

### IECT

#### Ecotin

Serine protease inhibitor purified from *E. coli*.

1.0 mg

5.0 mg

## Thioester Peptide CMK Labeling Reagents

ATA-FFRCK (N<sup>a</sup>-[(acetylthio) acetyl]-*D*-Phe-Phe-Arg-CH<sub>2</sub>Cl) and ATA-FPRCK (N<sup>a</sup>-[(acetylthio)acetyl]-*D*-Phe-Pro-Arg-CHCl<sub>2</sub>) are active-site specific labeling reagents for serine proteases. They are derivatized from irreversible peptide chloromethyl ketones and facilitate incorporation of a thioester moiety via alkylation of the catalytic site Histidine residue. Liberation of the free thiol group is accomplished by gentle treatment with hydroxylamine (NH<sub>2</sub>OH) following irreversible incorporation into the enzyme catalytic site. The free thiol then becomes a site for specific modifications with thiol-reactive probes such as iodoacetamide fluorescent probes. Many serine proteases in which free thiols are lacking may be specifically labeled at the active site by these reagents.

Both ATA-FPRCK and ATA-FFRCK have been used to label thrombin with 5-(iodoacetamido) fluorescein (5-IAF). The probe was then effectively utilized to follow conformational changes in the catalytic domain of alpha-thrombin upon binding to the fragment 2 domain of prothrombin. In addition, quantitative equilibrium binding studies and investigations into the kinetics underlying the non-proteolytic activation of the zymogen plasminogen by streptokinase were characterized with 2-((4'-iodoacetamido) anilino) naphthalene-6-sulfonic acid (IAANS) labeled plasminogen by using the ATA-FFRCK reagent.

### References

1. Bock, P. (1993) Method Enzymol. 222:478-503.
2. Bock, P. et al. (1996) J Biol. Chem. 271:1072-1080.

### 19.1 ATA-PHE-PRO-ARG-CMK

INFPRCK	ATA-Phe-Pro-Arg-CMK
0.1 mg	1.0 mg

### 19.2 ATA-PHE-PHE-ARG-CMK

INFFRCK	ATA-Phe-Phe-Arg-CMK
0.1 mg	1.0 mg

### 19.3 FLUORESCCEIN-PHE-PRO-ARG-CMK

FI-INFPR	Fluorescein-Phe-Pro-Arg-CMK
0.1 mg	1.0 mg

## Immobilized Proteins

### 20.1 IMMOBILIZED SOYBEAN TRYPSIN INHIBITOR

Soybean trypsin inhibitor (SBTI) is a reversible competitive inhibitor of trypsin and other trypsin-like proteases such as chymotrypsin, plasmin and plasma kallikrein. It has a MW of 22 kDa and a pI of 4.5 (1,2). We have immobilized SBTI on an agarose resin via coupling to primary amines to create an affinity resin with specificity for a number of serine proteases. SBTI binds free trypsin tighter with increasing pH from 4.5-8.0 that allows for a simple gradient to low pH (~2.5-3.0) for elution (1). May be used repeatedly.

#### References

1. Birk, Y. (1976) *Methods Enzymol.* 55:700-706.
2. Kassell, B. (1970) *Methods Enzymol.* 19:853-862.

ISBTI-I                      Immobilized soybean trypsin inhibitor

10 ml

50 ml

### 20.2 IMMOBILIZED HUMAN PLASMIN

We have immobilized human Lys plasmin on agarose resin by coupling of primary amines. Plasmin retains catalytic activity when coupled and may be used to efficiently activate single-chain tPA and uPA to the two-chain form (1). It may also be used to convert plasminogen from its native Glu form to the Lys form by removing the first 77 amino acids. May be used repeatedly.

#### References

1. Wallén, P. et al. (1982) *Biochim. Biophys. Acta* 719:318-328.

IHPL-I                      Immobilized human plasmin

1.0 ml

10 ml

### 20.3 IMMOBILIZED HUMAN UPA

Immobilized human two-chain HMW urokinase is ideal for the controlled activation of plasminogen to plasmin. After the activation is complete, the resin is simply removed and the reaction is quenched. May be used to immunopurify monoclonal and polyclonal antibodies directed against human urokinase. May be used repeatedly.

IHUPA-I                      Immobilized human urokinase

1.0 ml

### 20.4 IMMOBILIZED HUMAN TPA

May be used to immunopurify monoclonal and polyclonal antibodies directed against human tPA. May be used repeatedly.

IHTPA-I                      Immobilized human tissue plasminogen activator, single chain

1.0 ml

## 20.5 IMMOBILIZED PORCINE PANCREATIC ELASTASE

Immobilized elastase is an ideal reagent for the controlled cleavage of target protein substrates such as PAI-1. Elastase cleaves PAI-1 between the P3 and P4 residues to create a loop-inserted species that is non-inhibitory towards the target enzymes uPA and tPA. May be used repeatedly.

IELAS-I                      [Immobilized porcine pancreatic elastase](#)

1.0 ml

## 20.6 IMMOBILIZED HUMAN ANTITHROMBIN

Immobilized antithrombin is ideal for the purification of high affinity heparin. Heparin can be fractionated into two parts using affinity chromatography with immobilized antithrombin. One fraction, the high-affinity heparin, is responsible for nearly all of the anticoagulant activity. The other fraction, low-affinity heparin, has virtually no anticoagulant activity. May be used repeatedly.

IHATIII-I                      [Immobilized Human Antithrombin III](#)

1.0 ml

10 ml

**Chromogenic Substrates**

**21.1 CHROMOGENIC SUBSTRATE FOR PLASMIN**

**Formula:** H-D-Val-Leu-Lys-pNA · 2HCl

**Mr:** 551.6 Da

The plasmin substrate provided by Innovative Research is chemically and functionally identical to Chromogenix S-2251. Each 25 mg of substrate is lyophilized with 60 mg mannitol as a bulking agent.

**ID-VLK-pNA**                      **Chromogenic substrate for plasmin**

25 mg

100 mg

## General Information

### Products

All Innovative Research Inc. products are for in vitro research use only. The reagents that you purchase from Innovative Research Inc. are clearly labeled "For Research Use Only". To comply with U.S. Food and Drug Administration (FDA) Regulations, these products are not for use in Clinical, Diagnostic or Therapeutic Procedures. As your supplier, we advise our customers and monitor the use of these products to ensure that they are used for research purposes only. If you have any questions, do not hesitate to contact us. Thank you for your interest in Innovative Research Inc.

### Safety

All human plasmas, serums and whole bloods have been tested by an FDA approved method and found to be negative by a test for Human Immunodeficiency Virus RNA (HIV-1 RNA), Antibodies to Human Immunodeficiency Virus (Anti-HIV 1/2), Hepatitis C RNA (HCV RNA), Antibodies to Hepatitis C Virus (Anti-HCV), Non-reactive for Hepatitis B Surface Antigen (HbsAg), and Non-reactive by a screening test for syphilis. Not for use in products subject to license under section 351 of the public health service act. All materials are obtained from FDA licensed facilities (USA).

All coagulation factors are purified from human plasma that has been tested and found negative for all communicable diseases, including HIV-1, HIV-2, Rapid Plasma Reagin, Hepatitis B Surface Antigen and HCV. Donors are screened for CJD (Creutzfeldt-Jakob Disease).

Because no test methods can guarantee with 100% certainty the absence of an infectious agent, human derived products should be handled as suggested in the U.S. Department of Health and Human Services Manual on Biosafety in Microbiological & Biomedical Laboratories, for Potentially Infectious Human Serum or Blood Specimens. All human materials are obtained from FDA licensed facilities (USA).

### Storage and Handling

Store all plasmas, serums and protein samples at  $-70^{\circ}\text{C}$  unless otherwise specified. Store all whole bloods at  $4^{\circ}\text{C}$  unless otherwise specified. Freeze proteins in a concentrated form. Make dilutions immediately prior to use. Limit freeze/thaw cycles to minimize activity losses.

### Shipping

Most products are shipped frozen on dry ice by overnight carrier. Shipments to Europe are packed with enough dry ice for a 4-day transit.

### Warranty

Innovative Research Inc. (IR) guarantees that the performance of our products meets our stated claims at the time of shipment. IR shall not be liable for incidental, consequential, third party or special damages of any kind resulting from any use or failure of the products. The company's sole liability and Buyers exclusive remedy for a breach of this warranty is limited to replacement or refund at the option of IR. This warranty applies to products in original containers and does not apply to a product that has been subjected to alteration. The buyer is responsible for any patent infringement resulting from use of our products.

### Ordering & Delivery

We accept orders by mail, fax, e-mail, or via telephone. Please provide a purchase order number and the quantity of the desired product. Please include both a shipping and billing address.

### Pricing & Payment

Payments should be directed to the address below. Terms are Net 30 Days. Overdue accounts are subject to a charge of 1.5% per month. The customer will be responsible for all fees and court costs incurred in the collection of past due accounts.

### Innovative Research, Inc

21315 Hilltop St.

Southfield, MI 48034 USA

Tel: (248) 353-4853

Web: <http://www.innov-research.com>

Fax: (248) 353-4929

E-mail: [sales@innov-research.com](mailto:sales@innov-research.com)



[www.innov-research.com](http://www.innov-research.com)

Innovative Research, Inc.  
21315 Hilltop Street  
Southfield, MI 48034  
Tel: (248) 353-4853  
Fax: (248) 353-4929  
[sales@innov-research.com](mailto:sales@innov-research.com)