

Lipid-Related Factors and Metabolic Syndrome

Although lipids are essential for homeostasis and many aspects of reproduction, organ and cellular physiology, they are also linked to pathological processes such as obesity, diabetes and the metabolic syndrome. Some key players are apolipoproteins, C-reactive proteins (C-RPs), fatty acid binding proteins (FABPs), fatty acid synthase (FAS) and sphingosine-1-phosphate (S1P). Apolipoproteins comprise several major classes labeled alphabetically and their subclasses designated with specific numbers (e.g. ApoA1, ApoA2, ApoA3, etc.). The ratio of ApoB (primarily LDL) to ApoA1 (HDL-C) is a good indicator of cardiovascular risk. FABPs are expressed in a tissue-specific manner and shuttle fatty acids to cellular compartments. Some have important roles in regulating metabolism such as adipocyte FABP (aP2) which can affect insulin sensitivity, lipid metabolism and is involved in atherosclerosis. An important inflammatory marker, C-RP, is mainly synthesized in the liver though it is also produced in atherosclerotic lesions, the kidney, neurons, and alveolar macrophages. Its physiological role is to bind to phosphatidylcholine expressed on the surface of dead or dying cells (and some bacteria) in order to activate the complement system via the C1q complex. Hepatic C-RP synthesis is stimulated by the adipokines leptin and IL-6 and down-regulated by adiponectin. C-RP has been shown to impair insulin signaling and contributes to atherothrombosis. Synthesis of fatty acid (de novo) is due to the sole mammalian enzyme, FAS, whose gene expression in adipose tissue is linked to visceral fat accumulation, impaired insulin sensitivity, increased circulating fasting insulin, IL-6, leptin and RBP4. In addition, FAS is highly expressed in most human carcinomas and is associated with poor prognosis in breast and prostate cancer. FAS and fatty acid metabolism in cancer has become a focus for the potential diagnosis and treatment of cancer. S1P is a signaling sphingolipid, also referred to as a bioactive lipid mediator. S1P resides normally on lipoproteins, particularly HDL, and albumin in the circulation. Collective data appears to identify a novel role for sphingolipids in contributing to the prothrombotic and proinflammatory phenotype of the obese adipose tissue currently believed to play a major role in the pathogenesis of obesity-mediated cardiovascular and metabolic disease.

Assay Kits

Product Name	Cat. No.	Size
QuickDetect™ 24(S)-Hydroxycholesterol (Human) ELISA Kit	K4434	100 assays
3T3-L1 Differentiation Kit	K579	100 ml differentiation medium
Acetoacetate Colorimetric Assay Kit	K650	100 assays
Adipogenesis Colorimetric/Fluorometric Assay Kit	K610	100 assays
Adiponectin (human) Elisa Assay Kit	K4901	1 x 96 assays
Adiponectin (mouse) Elisa Assay Kit	K4902	1 x 96 assays
Adiponectin (rat) Elisa Assay Kit	K4903	1 x 96 assays
Alkaline Sphingomyelinase Activity Assay Kit (Colorimetric)	K987	100 assays
Cardiolipin Assay Kit (Fluorometric)	K944	100 assays
CETP Activity Fluorometric Assay Kit II	K595	100 assays
CETP Inhibitor Screening Kit (Fluorometric) II	K594	100 assays
Cholesterol Detection Kit (cell-based)	K587	100 assays
Cholesterol Efflux Fluorometric Assay Kit (cell-based)	K582	100 assays
Cholesterol/Cholesteryl Ester Quantitation Colorimetric/Fluorometric Kit	K603	100 assays

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Assay Kits

Product Name	Cat. No.	Size
Choline/Acetylcholine Quantification Colorimetric/ Fluorometric Kit	K615	100 assays
QuickDetect™ Free cholesterol (fCHOL) (Mouse) ELISA Kit	K4438	100 assays
QuickDetect™ free cholesterol (fCHOL) (Rat) ELISA Kit	K4437	100 assays
EZScreen™ Free Fatty Acid Colorimetric Assay Kit (384-well)	K956	400 assays
Free Fatty Acid Quantification Colorimetric/ Fluorometric Kit	K612	100 assays
Free Glycerol Colorimetric Assay Kit II	K634	100 assays
Free Glycerol Colorimetric/Fluorometric Assay Kit	K630	100 assays
Free Glycerol Fluorometric Assay Kit, PicoProbe™	K643	100 assays
FTO (human intracellular) ELISA Kit	K4921	100 assays
EZScreen™ Glucose Colorimetric Assay Kit (384 Well)	K950	384 assays
Glucose Colorimetric Assay Kit II	K686	100 assays
Glucose Colorimetric/Fluorometric Assay Kit	K606	100 assays
PicoProbe™ Glucose Fluorometric Assay Kit	K688	100 assays
Glycerol Cell-Based Assay Kit	K977	100 assays
Glycerol-3-Phosphate Dehydrogenase Activity Colorimetric Assay Kit	K640	100 assays
HDL and LDL/VLDL Quantification Colorimetric/ Fluorometric Kit	K613	100 assays
HDL Uptake Assay Kit (Fluorometric)	K586	100 assays
QuickDetect™ HDL-C (Human) ELISA Kit	K4433	100 assays
Hepatic Steatosis Assay Kit	K584	100 assays
HMG-CoA Reductase Activity/Inhibitor Screening Kit (Colorimetric)	K588	100 assays
Irisin Competitive ELISA Kit	K4761	100 assays
EZScreen™ Lactate Colorimetric Assay Kit (384 Well)	K951	384 assays
Leptin (human) ELISA Kit	K4777	100 assays
Lipase Activity Colorimetric Assay Kit	K722	100 assays
Lipid Extraction Kit (Chloroform Free)	K216	50 assays
Lipolysis (3T3-L1) Colorimetric Assay Kit	K577	100 assays
PicoProbe™ Lipolysis (3T3-L1) Fluorometric Assay Kit	K578	100 assays
Lipolysis (Adipocyte) Colorimetric/Fluorometric Assay Kit	K581	For 5 g Tissue
Lipoprotein Lipase Activity Fluorometric Assay Kit	K721	100 assays
Nampt (Visfatin/PBEF) (human) Intracellular ELISA Kit	K4909	100 assays
Nampt (Visfatin/PBEF) (mouse/rat) Serum ELISA Kit	K4908	100 assays
PAF Acetylhydrolase (PAF-AH) Inhibitor Screening Kit (Colorimetric)	K766	100 assays
PAF Acetylhydrolase Activity Assay Kit (Colorimetric)	K765	100 assays
PCSK9 (human) ELISA Kit	K7265	100 assays
PCSK9 (mouse) ELISA Kit	K7266	100 assays
Phosphatidylcholine Colorimetric/Fluorometric Assay Kit	K576	100 assays
Phospholipid Assay Kit (Colorimetric/Fluorometric)	K351	100 assays
PLTP Activity Fluorometric Assay Kit	K604	100 assays
PLTP Activity Fluorometric Assay Kit II	K593	100 assays
PLTP Inhibitor Drug Screening Kit (Fluorometric)	K605	100 assays
Preadipocyte Isolation Kit	K583	For 5 g Tissue
RBP4 (human) Competitive ELISA Kit	K4911	100 assays

Assay Kits

Product Name	Cat. No.	Size
RBP4 (human) ELISA Kit	K4912	100 assays
RBP4 (mouse/rat) ELISA Kit	K4913	100 assays
QuickDetect™ Remnant lipoprotein cholesterol (RLP-c) (Human) ELISA Kit	K4432	100 assays
QuickDetect™ Remnant lipoprotein cholesterol (RLP-c) (Mouse) ELISA Kit	K4439	100 assays
QuickDetect™ Remnant lipoprotein cholesterol (RLP-c) (Rat) ELISA Kit	K4435	100 assays
Resistin (human/mouse/rat) EIA Kit	K4767	100 assays
Sphingomyelin Quantification Colorimetric Assay Kit	K600	100 assays
Sphingomyelinase Activity Colorimetric Assay Kit	K599	100 assays
Sphingomyelinase Activity Fluorometric Assay Kit	K574	100 assays
EZScreen™ Total Cholesterol & Cholesteryl Ester Colorimetric Assay Kit (384-Well)	K957	400 assays
QuickDetect™ Total cholesterol (Human) ELISA Kit	K4431	100 assays
QuickDetect™ Total cholesterol (Mouse) ELISA Kit	K4440	100 assays
QuickDetect™ Total cholesterol (Rat) ELISA Kit	K4436	100 assays
Total Cholesterol and Cholesteryl Ester Colorimetric/Fluorometric Assay Kit	K603	100 assays
PicoProbe™ Triglyceride (TG) Fluorometric Assay Kit	K614	100 assays
EZScreen™ Triglyceride Quantification Colorimetric Assay Kit (384-well)	K952	400 assays
Triglyceride Quantification Colorimetric/Fluorometric Kit	K622	100 assays
Visfatin (human) Elisa Assay Kit	K4907	100 assays
β-Hydroxybutyrate (β-HB) Colorimetric Assay Kit	K632	100 assays
PicoProbe™ β-Hydroxybutyrate Fluorometric Assay Kit	K651	100 assays

Antibodies

Product Name	Cat. No.	Size
ABAD/HADH2 Antibody	3246	30 µg, 100 µg
ACAA1 Antibody	3536	30 µg, 100 µg
ACAA2 Antibody	3538	30 µg, 100 µg
ACAD-9 Antibody	3239	100 µg
ACADL Antibody	3139	30 µg, 100 µg
ACADM Antibody	3137	30 µg, 100 µg
ACADS Antibody	3539	30 µg, 100 µg
ACADSB Antibody	3150	30 µg, 100 µg
ACADSB Antibody	3157	30 µg, 100 µg
ACADVL Antibody	3240	30 µg, 100 µg
ACAT1 Antibody	3245	30 µg, 100 µg
ACAT2 Antibody	3254	30 µg, 100 µg
Adiponectin Antibody	5900	50 µg
Adiponectin Antibody	5901	50 µg, 250 µg
Adiponectin Antibody	5902	50 µg, 250 µg
Adiponectin Antibody	5903	50 µg, 250 µg
ApoA1 Antibody	5693	30 µg, 100 µg
ApoA1 Antibody	5695	30 µg, 100 µg
ApoE3 Antibody	5696	30 µg, 100 µg

Antibodies

Product Name	Cat. No.	Size
ApoE4 Antibody	5699	30 µg, 100 µg
ApoLipoprotein B Antibody	3661	100 µg
ApoSAA Antibody	5324	30 µg, 100 µg
CETP Antibody	6606	30 µg, 200 µg
CETP Antibody	3413	30 µg, 100 µg
CGI-58 Antibody	3901	30 µg, 100 µg
C-Peptide Antibody	3277	30 µg, 100 µg
ERAB/HCD2 Antibody	3255	30 µg, 100 µg
FABP1 Antibody	5501	30 µg, 200 µg
FABP3 Antibody	5503	30 µg, 100 µg
FABP4 Antibody	5504	30 µg, 100 µg
FABP5 Antibody	5505	30 µg, 100 µg
FABP7 Antibody	5507	30 µg, 100 µg
FATP4 Antibody	3268	30 µg, 100 µg
HADH/HCDH Antibody	3264	30 µg, 100 µg
HSD17B4/MPF-2 Antibody	3617	30 µg, 100 µg
HSD17B4/MPF-2 Antibody	3627	30 µg, 100 µg
LDLR Antibody	3839	30 µg, 100 µg
LRP-5/6 Antibody	3714	30 µg, 100 µg
LXR Antibody	3641	30 µg, 100 µg
PCSK9 Antibody	5112	100 µg
Sphingosine Kinase 1 (SPK1) Antibody	3883	30 µg, 100 µg
Sphingosine Kinase 2 (SPK2) Antibody	3884	30 µg, 100 µg
TFPI Antibody	3379	30 µg, 100 µg

Antihyperlipidemics

Product Name	Cat. No.	Size	CAS Number
Lovastatin	1692	50 mg, 250 mg	75330-75-5
Mevastatin	1694	50 mg, 250 mg	73573-88-3
Rosuvastatin	1955	5 mg, 25 mg	287714-41-4
EZSolution™ Rosuvastatin	2806	5 mg	287714-41-4
Simvastatin	1693	50 mg, 250 mg	79902-63-9

Phosphodiesterase Inhibitors

Product Name	Cat. No.	Size	CAS Number
IBMX	1714	100 mg	28822-58-4
(R,S)-Rolipram	2010	5 mg	61413-54-5
Apremilast	2352	5 mg, 25 mg	608141-41-9
Cilostazol	2393	5 mg, 25 mg	73963-72-1
Milrinone	2163	5 mg, 25 mg	78415-72-2
RO 20-1724	2042	50 mg, 250 mg	29925-17-5
Zaprinast	1715	25 mg	37762-06-4

Proteins/Enzymes

ACAT (Acyl-CoA cholesteryl acyl transferase)

Product Name	Cat. No.	Size
ACAT-2, human recombinant	4910	20 µg, 1 mg
Carboxylesterase 1D, mouse recombinant	P1094	2 µg, 10 µg

Apolipoproteins

Product Name	Cat. No.	Size
ApoA-1, human recombinant	4693	20 µg, 100 µg, 1 mg
ApoA-1, rat recombinant	4695	20 µg, 100 µg, 1 mg
Apo-D, human recombinant	4326	10 µg, 1 mg
ApoE2, human recombinant	4760	50 µg, 100 µg, 500 µg, 1 mg, 5 mg
ApoE3, human recombinant	4696	50 µg, 100 µg, 500 µg, 1 mg, 5 mg
ApoE4, human recombinant	4699	50 µg, 100 µg, 500 µg, 1 mg, 5 mg
Apo-J/Clusterin, human plasma	4325	10 µg, 500 µg
Human CellExp™ ApoJ/Clusterin, human recombinant	7459	10 µg, 50 µg
ApoJ/Clusterin, mouse recombinant	7554	10 µg, 50 µg
Apolipoprotein AII, Human Plasma	7281	500 µg
Apolipoprotein AIV, Human Plasma	7282	50 µg
Apolipoprotein B, Human Plasma	7283	500 µg
Apolipoprotein E, Human Plasma	7284	50 µg
Apo-SAA, human recombinant	4324	10 µg, 50 µg, 500 µg, 1 mg
Chylomicrons, Human Plasma	7285	1 mg
SAA1 monkey, recombinant	4332	10 µg, 50 µg, 1 mg

C-reactive Proteins

Product Name	Cat. No.	Size
ACC2 Inhibitor	1717	1 mg, 5 mg
Cerulein	1579	5 mg, 50 mg
Fingolimod (FTY-720A, FTY720)	1618	5 mg, 25 mg
SCD1 Inhibitor	1716	1 mg, 5 mg

Fatty Acid Binding Proteins (FABPs)

Product Name	Cat. No.	Size
FABP1, human recombinant	4501	25 µg, 100 µg, 1 mg
Human CellExp™ FABP2 /I-FABP, human recombinant	7474	10 µg, 50 µg
FABP3, human recombinant	4503	25 µg, 100 µg, 1 mg
FABP4, human recombinant	4504	25 µg, 100 µg, 1 mg
FABP5, human recombinant	4505	25 µg, 100 µg, 1 mg
FABP7, human recombinant	4507	25 µg, 100 µg, 1 mg

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