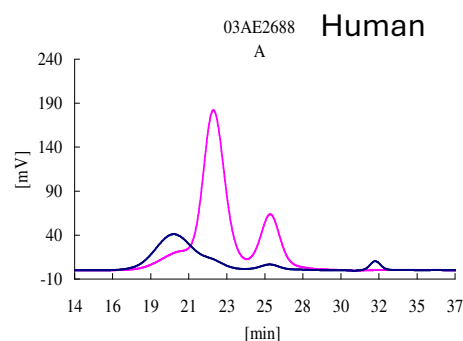


- Gel permeation chromatography
- Lipoprotein subclasses (CM, VLDL, LDL, HDL) by particle size.
- Simultaneously measures total cholesterol (TC) and triglycerides (TG) concentrations

— : Cholesterol Elution time of peak for standard human serum LDL: 22.6 min
 — : Triglyceride Elution time of peak for standard human serum HDL: 25.4 min

❖ The peak from 32 min onwards is derived from free glycerol.



		Cholesterol (Cho) Level [mg/dL]					Triglyceride (TG) Level [mg/dL]				
Report No.	sample ID	Total	CM (>80nm)	VLDL (30-80nm)	LDL (16-30nm)	HDL (8-16nm)	Total	CM (>80nm)	VLDL (30-80nm)	LDL (16-30nm)	HDL (8-16nm)
03AE2688	human	213.89	0.36	33.44	131.42	48.68	175.02	2.66	134.05	24.44	13.87
02AE2975	mouse	95.38	0.58	3.86	12.45	78.50	40.89	5.78	21.93	11.61	1.57

3 service options

service code	name of service	Lipoprotein Profiling Service Measurement of	4 major classes CM, VLDL, LDL, HDL	20 single subfractions
76101	LipoSEARCH (only 4M classes)	Cholesterol	yes	no
		Triglycerides	yes	no
		Particle size	yes	no
76102	LipoSEARCH (4+20 classes)	Cholesterol	yes	yes
		Triglycerides	yes	yes
		Particle size	yes	yes
76103	LipoSEARCH (+4+20 classes)/PN	Cholesterol	yes	yes
		Triglycerides	yes	yes
		Particle size	yes	yes
		Particle number	yes	yes

All service options include free glycerol level and particle size analysis in the report

4 Major lipoprotein subclasses (CM, VLDL, LDL, HDL) by particle size

LipoSEARCH High-sensitivity Lipoprotein Profiling System		Cholesterol (Cho) Level [mg/dL]					Triglyceride (TG) Level [mg/dL] EXAMPLE ONLY					Free Glycerol Level [mg/dL]	Particle size calculated by Cho Plot [nm]				Particle size calculated by TG Plot [nm]			
Report No.	sample ID	Total	CM (>80nm)	VLDL (30-80nm)	LDL (16-30nm)	HDL (8-16nm)	Total	CM (>80nm)	VLDL (30-80nm)	LDL (16-30nm)	HDL (8-16nm)		CM (>80nm)	VLDL (30-80nm)	LDL (16-30nm)	HDL (8-16nm)	CM (>80nm)	VLDL (30-80nm)	LDL (16-30nm)	HDL (8-16nm)
03AE2688	human	213.89	0.36	33.44	131.42	48.68	175.02	2.66	134.05	24.44	13.87	1.14	>95	43.23	24.86	10.70	>95	49.11	25.18	10.75
02AE2975	mouse	95.38	0.58	3.86	12.45	78.50	40.89	5.78	21.93	11.61	1.57	3.17	>100	45.66	23.36	11.49	>100	52.74	25.90	10.53

20 sub-classes (defined by a particle size)

LipoSEARCH High-sensitivity Lipoprotein Profiling System		Class	CM (>80nm)		VLDL (30-80nm)					LDL (16-30nm)						HDL (8-16nm)						
		Sub-Class			large VLDL			medium VLDL	small VLDL	large LDL	medium LDL	small LDL	very small LDL			very large HDL		large HDL	medium HDL	small HDL	very small HDL	
Report No.	sample ID	Total Cho of all fractions [mg/dL]	G01 fraction Cho [mg/dL]	G02 fraction Cho [mg/dL]	G03 fraction Cho [mg/dL]	G04 fraction Cho [mg/dL]	G05 fraction Cho [mg/dL]	G06 fraction Cho [mg/dL]	G07 fraction Cho [mg/dL]	G08 fraction Cho [mg/dL]	G09 fraction Cho [mg/dL]	G10 fraction Cho [mg/dL]	G11 fraction Cho [mg/dL]	G12 fraction Cho [mg/dL]	G13 fraction Cho [mg/dL]	G14 fraction Cho [mg/dL]	G15 fraction Cho [mg/dL]	G16 fraction Cho [mg/dL]	G17 fraction Cho [mg/dL]	G18 fraction Cho [mg/dL]	G19 fraction Cho [mg/dL]	G20 fraction Cho [mg/dL]
03AE2688	human	213.89	0.13	0.23	1.62	5.27	10.02	7.66	8.87	29.07	53.15	32.53	10.01	4.51	2.14	1.65	2.18	7.90	15.52	13.13	5.64	2.67
02AE2975	mouse	95.38	0.40	0.18	0.45	0.74	0.90	0.77	1.01	3.21	3.06	1.61	0.64	2.50	1.43	2.85	4.20	27.49	32.51	7.52	2.40	1.51

Particle numbers in 20 sub-fractions

LipoSEARCH High-sensitivity Lipoprotein Profiling System		particle numbers (nM)																					
		CM fraction	VLDL fraction	LDL fraction	HDL fraction	largeVLDL			medium VLDL	small VLDL	large LDL	medium LDL	small LDL	very small LDL			very large HDL		large HDL	medium HDL	small HDL	very small HDL	
						G03 fraction	G04 fraction	G05 fraction	G06 fraction	G07 fraction	G08 fraction	G09 fraction	G10 fraction	G11 fraction	G12 fraction	G13 fraction	G14 fraction	G15 fraction	G16 fraction	G17 fraction	G18 fraction	G19 fraction	G20 fraction
Report No.	sample ID																						
03AE2688	human	0.26	184.69	1711.35	#####	3.20	18.37	49.68	57.82	55.63	229.16	655.93	476.39	171.78	101.09	77.00	93.78	185.02	1084.99	3486.97	5041.13	3798.28	2425.58
03AC7410	mouse	0.54	24.55	255.99	#####	1.16	3.13	5.51	6.04	8.71	39.71	67.36	34.90	15.44	52.31	46.26	137.78	299.02	3199.14	6284.96	2526.84	1445.69	1442.33

The definition of lipoprotein subclasses in the LipoSEARCH system

Table 2 Definition of lipoprotein subclasses in the LipoSEARCH system.

component peak No.	1	2	3	4	5 ^a	6 ^a	7 ^a	8	9 ^a	10 ^a	11	12	13	14	15 ^a	16	17 ^a	18 ^a	19	20 ^b
subclass name	CM1	CM2	VLDL1	VLDL2	VLDL3	VLDL4	VLDL5	LDL1	LDL2	LDL3	LDL4	LDL5	LDL6	HDL1	HDL2	HDL3	HDL4	HDL5	HDL6	HDL7
major subclass name	CM		large VLDL			medium VLDL	small VLDL	large LDL	medium LDL	small LDL	very small LDL			very large HDL		large HDL	medium HDL	small HDL	very small HDL	
major class name	CM		VLDL					LDL						HDL						
particle diameter (nm)	>90	75	64	53.6	44.5	36.8	31.3	28.6	25.5	23	20.7	18.6	16.7	15	13.5	12.1	10.9	9.8	8.8	7.6
particle radius ^c (nm)	41.2		32	26.8	22.25	18.4	15.65	14.3	12.75	11.5	10.35	9.3	8.35	7.5	6.75	6.05	5.45	4.9	4.4	3.8

^a anchor peak determined experimentally as average peak positions of healthy subject and dyslipidemic patients.

^b including color material in plasma, such as bilirubin.

^c particle radius corresponding to a maximum hydration layer including hydrated water and sugar chains, by which lipoprotein particle separated (R_{max} in Fig. 3).

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