Supplementary information

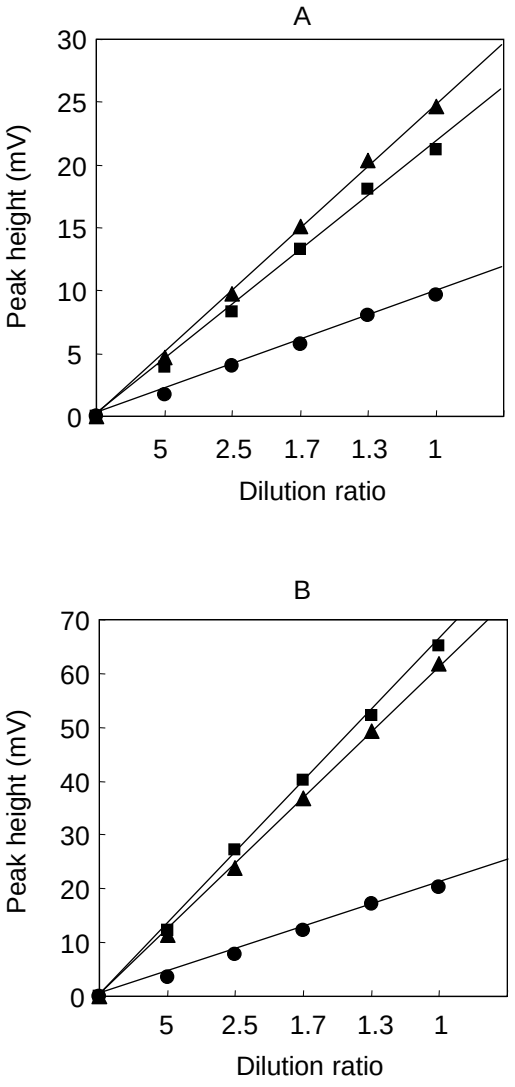
Automated measurement method for the determination of vitamin E in plasma lipoprotein classes.

Yuji Hirowatari [1]*, Hiroshi Yoshida [2]*, Hideo Kurosawa [3], Daisuke Manita [1], Norio Tada [4].

[1] Bioscience Division, TOSOH Corporation, Kanagawa, Japan
[2] Department of Laboratory Medicine, Jikei University Kashiwa Hospital, Chiba, Japan
[3] Clinical Laboratory Department, Inzai General Hospital, Chiba Japan.
[4] Clinical Medicine Research Institute, Jikei University Kashiwa Hospital, Chiba, Japan

Address of corresponding authors
Yuji Hirowatari, Ph.D.
Bioscience Division, TOSOH CORPORATION
2743-1 Hayakawa, Ayase, Kanagawa 252-1123, Japan
Phone: +81-467-76-9911
FAX: +81-467-76-9932
E-mail: yuuji-hirowatari-bx@tosoh.co.jp

Hiroshi Yoshida, MD, PhD, FAHA, FACP
Professor, Department of Laboratory Medicine,
Jikei University Kashiwa Hospital
163-1 Kashiwashita, Kashiwa Chiba 277-8567, Japan
Phone: +81-4-7164-1111 (ext. 2270)
FAX: +81-4-7164-1126
E-mail: hyoshida@jikei.ac.jp



Supplementary Figure S1. Linearity of γ- and α-tocopherol in lipoprotein classes.

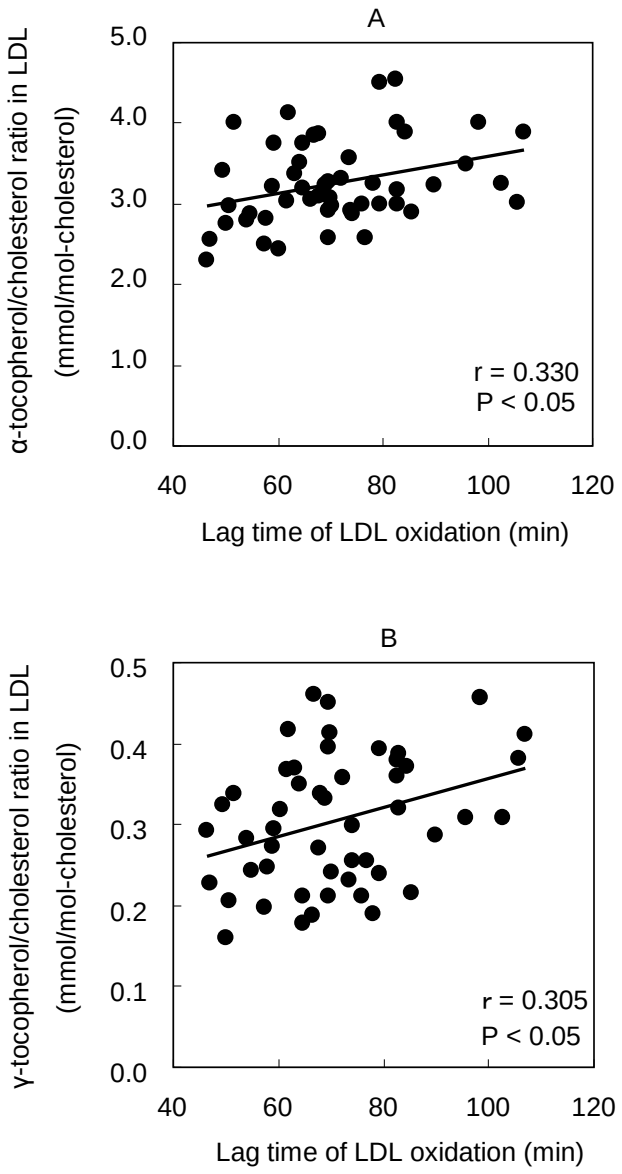
A and B show the data of γ- and α-tocopherol in lipoprotein classes. Tocopherols in HDL, LDL, and VLDL are represented by circles, triangles, and squares, respectively.

Supplementary Table S1. Precison data for tocopherol concentrations in lipoproteins

		Between assay (n=10)			Within assay (n=10)		
		Mean (μmol/L)	SD (μmol/L)	CV (%)	Mean (μmol/L)	SD (μmol/L)	CV (%)
Subject 4	γ-tocopherol in HDL	0.74	0.07	9.15	0.78	0.05	5.94
	α-tocopherol in HDL	6.70	0.47	7.00	7.09	0.46	6.53
	γ-tocopherol in LDL	0.68	0.06	9.19	0.70	0.05	7.51
	α-tocopherol in LDL	7.04	0.58	8.21	7.27	0.45	6.23
	γ-tocopherol in VLDL	0.30	0.04	14.73	0.32	0.04	12.84
	α-tocopherol in VLDL	2.52	0.23	8.99	2.69	0.22	8.20
Subject 5	γ-tocopherol in HDL	0.78	0.08	9.73	0.74	0.04	5.54
	α-tocopherol in HDL	5.29	0.50	9.44	5.22	0.26	5.05
	γ-tocopherol in LDL	1.05	0.09	8.79	1.04	0.05	4.73
	α-tocopherol in LDL	8.73	0.69	7.93	9.07	0.57	6.30
	γ-tocopherol in VLDL	0.73	0.07	9.15	0.73	0.05	6.31
	α-tocopherol in VLDL	6.37	0.60	9.39	6.65	0.39	5.84

Supplementary Table S2. Recovery data of tocopherol.

	Original concentration (μmol/L)	Added amount (μmol/L)	Amount found (μmol/L)	Recovery rate (%)
γ-tocopherol in HDL	0.53	0.21	0.20	92
		0.32	0.33	101
		0.43	0.44	102
α-tocopherol in HDL	3.86	2.22	2.01	90
		3.33	3.74	112
		4.44	4.92	111
γ-tocopherol in LDL	0.80	0.52	0.49	93
		0.79	0.77	98
		1.05	1.14	109
α-tocopherol in LDL	9.33	7.27	6.91	95
		10.90	11.68	107
		14.54	16.64	114
γ-tocopherol in VLDL	0.45	0.59	0.54	92
		0.88	0.92	104
		1.18	1.23	105
α-tocopherol in VLDL	5.64	14.81	16.07	108
		22.41	24.10	108
		32.42	32.14	99



Supplementary Figure S2. Correlation between LDL oxidation lag-time and γ- and α-tocopherol/cholesterol ratio in LDL.

Oxidation lag-times of LDL fraction obtained from plasma of 50 subjects by ultracentrifugation are analyzed. The levels of γ- and α-tocopherol/cholesterol ratio in LDL are determined by the new estimated method. The data of 50 subjects are as follows: male/female = 37/13, age = 52.8±13.8year, TC = 5.06±0.67mmol/L, TG = 1.26±0.61mmol/L.

Supplementary Table S3. Comparison of the sum of tocopherols in lipoprotein fractions with the plasma level.

	γ-tocopherol						α-tocopherol					
Plasma No.	HDL (μmol/L)	LDL (μmol/L)	VLDL (μmol/L)	Sum (HDL+LDL+VLDL) (μmol/L)	Plasma level (μmol/L)	Recovery rate (%)	HDL (μmol/L)	LDL (μmol/L)	VLDL (μmol/L)	Sum (HDL+LDL+VLDL) (μmol/L)	Plasma level (μmol/L)	Recovery rate (%)
1	1.18	0.93	0.37	2.49	2.84	87	6.18	6.66	2.00	14.83	14.98	99
2	0.90	0.78	0.20	1.88	2.35	80	8.65	9.95	2.34	20.94	22.86	92
3	1.81	1.20	0.35	3.36	4.39	76	9.68	7.34	1.75	18.77	20.55	91
4	0.45	0.79	0.41	1.65	1.73	95	3.47	8.86	4.20	16.53	17.28	96
5	0.93	0.84	0.29	2.05	2.16	95	6.99	10.09	2.67	19.75	20.32	97
6	1.38	0.88	0.28	2.54	3.40	75	11.66	9.43	3.50	24.59	26.71	92
7	1.11	1.02	0.40	2.53	2.82	90	8.84	10.25	2.83	21.93	22.58	97
8	1.13	1.22	0.46	2.81	3.01	93	7.45	10.22	3.21	20.88	21.16	99
9	0.93	1.09	0.43	2.45	3.21	76	7.20	10.59	3.35	21.14	24.67	86
10	0.77	0.89	0.71	2.37	2.90	82	4.61	8.56	5.43	18.60	21.81	85
Mean	1.06	0.96	0.39	2.41	2.88	85	7.47	9.19	3.13	19.79	21.29	93
SD	0.37	0.16	0.14	0.48	0.73	8	2.40	1.33	1.09	2.78	3.38	5