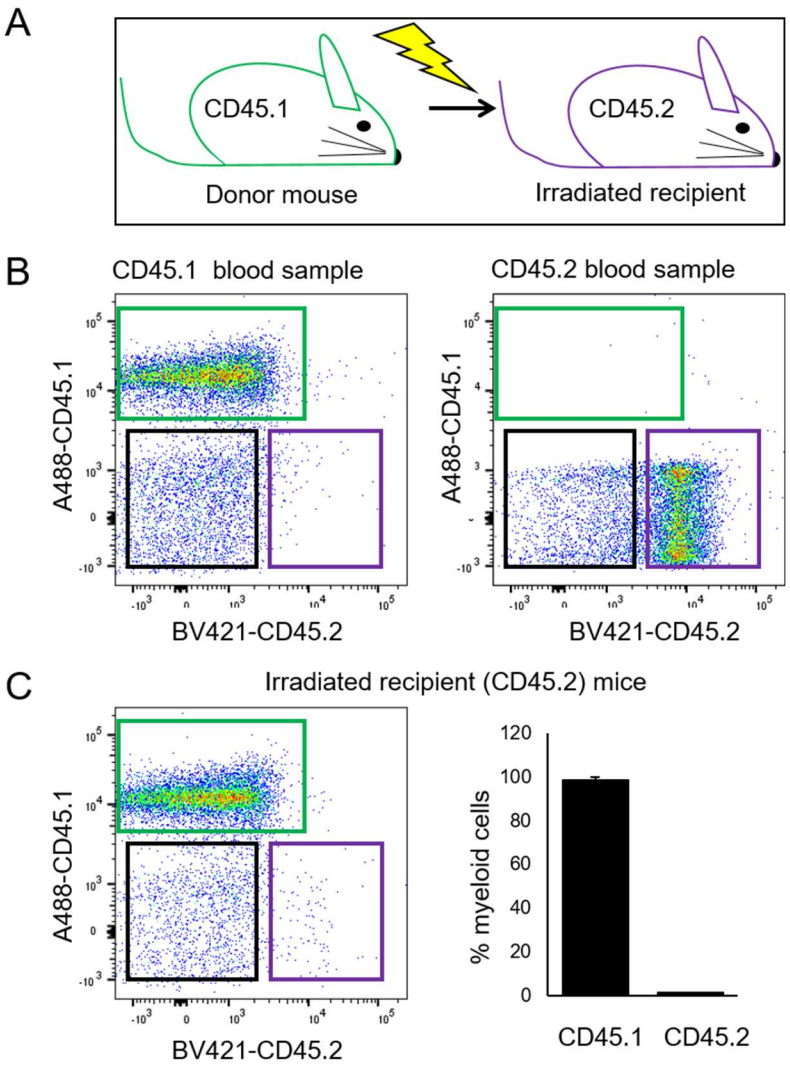
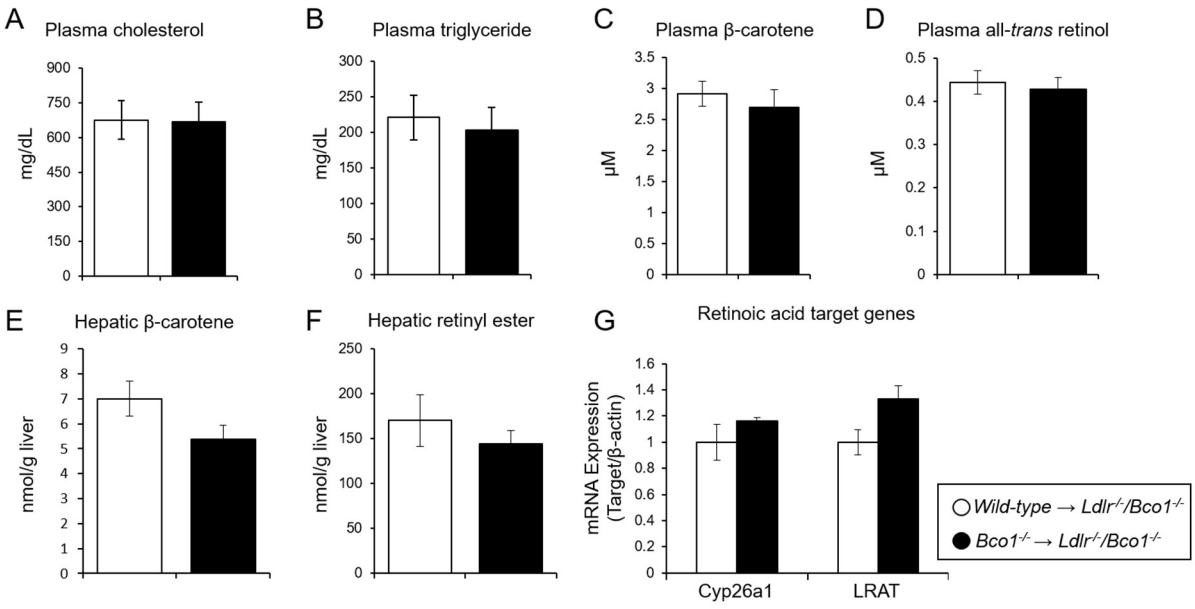
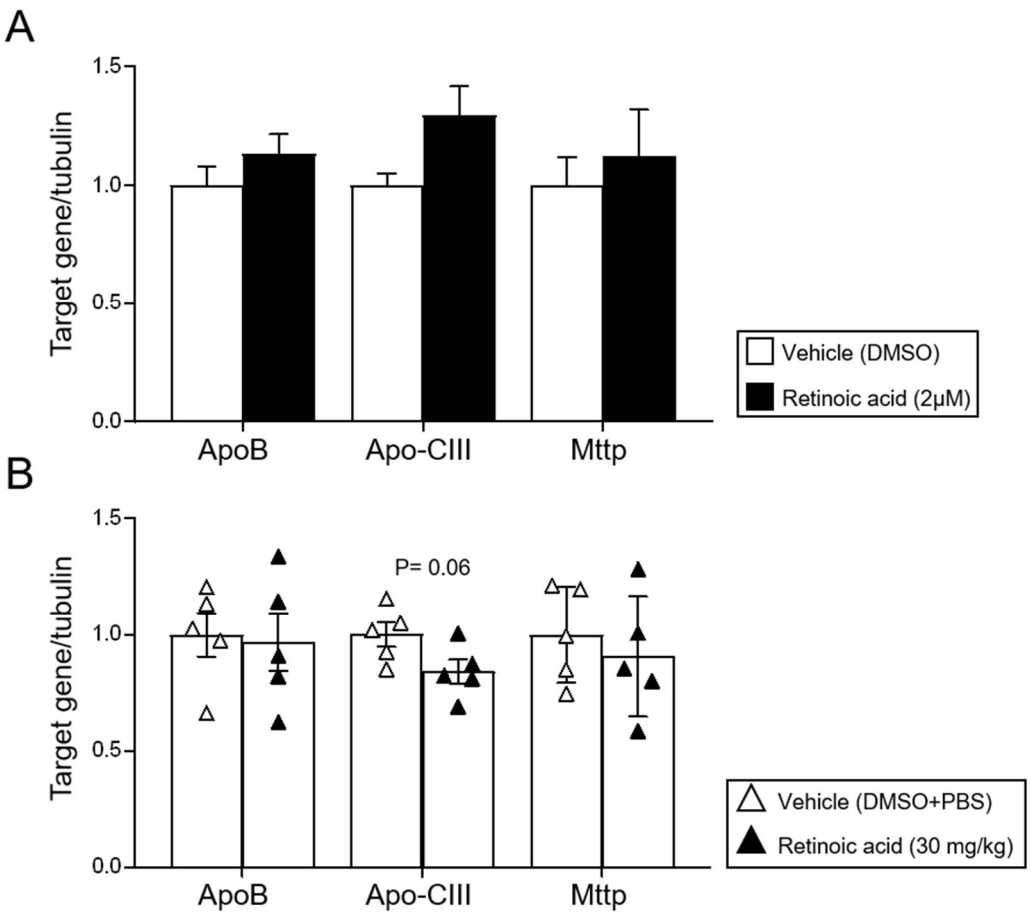


Supplemental Figure S1. Evaluation of the bone marrow transplant efficiency. **(A)** Bone marrow cells obtained from wild-type CD45.1 mice were transplanted into lethally-irradiated CD45.2 recipient mice. **(B)** Blood sample of CD45.1 and CD45.2 mice stained with anti-CD45.1 conjugated to Alexa488 (A488-CD45.1) and anti-CD45.2 conjugated to Brilliant Violet 421 (BV421-CD45.2). **(C)** After an eight week recovery period, we bleed recipient mice to determine bone marrow transplant efficiency by quantifying the amount of CD45.1 and CD45.2 cells (n = 5 mice).



Supplemental Figure S2. Wild-type or *Bco1*$^{-/-}$ mice bone marrow cells were transplanted into lethally-irradiated *Ldlr*$^{-/-}$*/Bco1*$^{-/-}$ mice. After a recovery period, chimeric mice were fed a Western diet supplemented with β-carotene for 16 weeks. **A)** Total cholesterol, **(B)** triglyceride, **(C)** β-carotene, and **(D)** all-*trans* retinol in plasma at the moment of the sacrifice. **(E)** β-carotene, and **(F)** retinyl esters in liver homogenates. **(G)** Relative mRNA expression of two retinoic acid target genes in liver homogenates. Values are represented as the mean ± SEM of 6 to 12 animals per group. Statistical differences were evaluated using a two-tailed Student's t-test.



Supplemental Figure S3. Effect of retinoic acid on genes related to lipoprotein metabolism. **(A)** Changes on mRNA expression in McA rat hepatic cells cultured in a normal growth medium and exposed to 2 μM of retinoic acid or DMSO (vehicle control) for 6 hours. **(B)** Changes on mRNA expression in age and sex-matched wild-type mice after receiving a single intraperitoneal injection of an emulsion containing 30 mg/kg of retinoic acid dissolved in DMSO and PBS or vehicle (DMSO + PBS) for 6 hours before tissue harvesting. Numerical data represent the mean ± SEM of 3 independent experiments (cell culture) and 5 animals/group. Statistical differences were evaluated by unpaired Student's t-test.

Supplemental Table S1. Diet composition used in the animal study[1].

	WD-VAD	WD-β-carotene	WD-VA
Ingredient	g/kg diet	g/kg diet	g/kg diet
Casein	200	200	200
L-Cysteine	3	3	3
Corn starch	72.8	72.8	72.8
Maltodextrin	100	100	100
Sucrose	212	212	212
Cellulose	50	50	50
Soybean oil	25	25	25
Lard	160	160	160
t-butylhydroquinone	0	0	0
Choline bitartrate	2	2	2
Dicalcium phosphate	13	13	13
Calcium carbonate	5.5	5.5	5.5
Potasium citrate monohydrate	16.5	16.5	16.5
Cholesterol	3.08	3.08	3.08
Mineral mix	10	10	10
Vitamin mix, no added vitamin A	10	10	10
Placebo beadlets	0.5	0	0.5
β-carotene beadlets, 10% β-carotene	0	0.5	0
Retinyl acetate, 500,000 IU/g	0	0	0.0071

[1] IU; international units, WD-VAD; Western diet - vitamin A deficient, VA; vitamin A.

Supplemental Table S2. Abundance of selected genes in samples isolated from laser capture microdissection in CD68^{+} cells collected from atherosclerotic lesions in lethally-irradiated *Ldlr$^{-/-}$/Bco1$^{-/-}$* mice that were transplanted with wild-type bone marrow cells (see Methods for details)[1].

Absolute Expression Value Organized by Abundance	*Gene*	Normalized Counts
1	*Apoe*	1836852
2	*Spp1*	1336037
3	*Lyz2*	800186
4	*Ctsb*	777222
5	*Ctsl*	683521
31	*Cd68*	114771
13963	***Bco1***	**33**

[1] Wild-type bone marrow cells were transplanted into lethally-irradiated *Ldlr$^{-/-}$/Bco1$^{-/-}$* mice. After a recovery period, chimeric mice were fed a Western diet supplemented with β-carotene for 16 weeks. CD68^{+} cells isolated from atherosclerotic lesions were used to perform RNA sequencing analysis.