Supplemental Table I. Apolipoprotein quantification

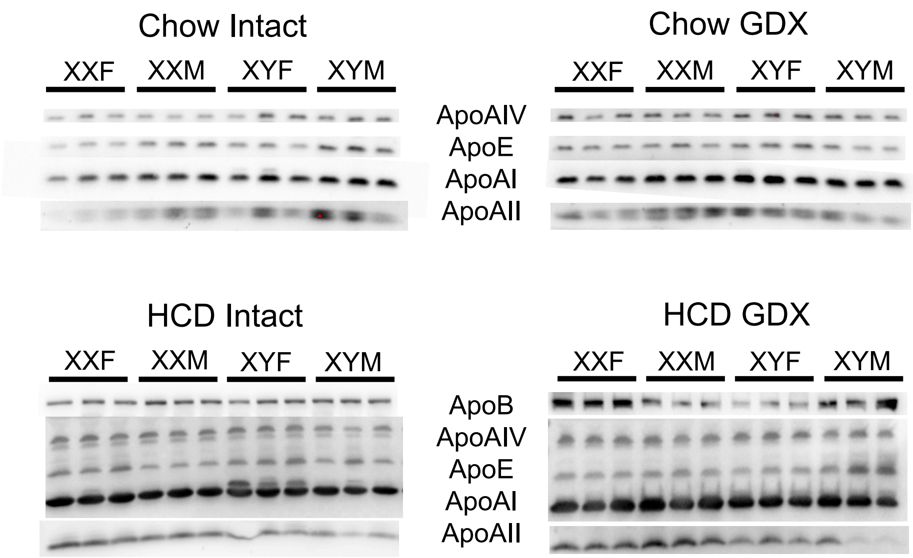
		ApoAI	ApoAII	ApoAIV	ApoB	ApoE
Chow Intact	XXF	1.10 (0.32)	0.61 (0.39)	0.63 (0.19)	not detected	0.62 (0.14)
	XXM	1.70 (0.19)	1.98 (0.58)	0.59 (0.07)		1.39 (0.19)
	XYF	1.72 (0.37)	1.85 (1.23)	1.09 (0.41)		1.01 (0.24)
	XYM	2.11 (0.12)	3.14 (1.60)	1.07 (0.14)		1.79 (0.34)
Chow GDX	XXF	1.77 (0.28)	1.80 (0.42)	1.03 (0.37)	not detected	1.07 (0.12)
	XXM	2.30 (0.07)	3.24 (0.64)	1.06 (0.06)		1.09 (0.28)
	XYF	3.10 (0.40)	3.18 (0.76)	1.53 (0.14)		1.61 (0.27)
	XYM	2.12 (0.19)	1.78 (0.80)	1.19 (0.27)		0.99 (0.25)
HCD Intact	XXF	1.27 (0.13)	7.14 (1.76)	3.20 (0.35)	4.79 (0.44)	3.41 (0.33)
	XXM	1.12 (0.08)	5.78 (0.39)	2.76 (0.16)	5.29 (0.88)	2.08 (0.16)
	XYF	0.91 (0.07)	3.39 (0.84)	2.83 (0.10)	4.66 (0.83)	3.16 (0.37)
	XYM	1.15 (0.17)	3.28 (1.29)	2.15 (0.49)	5.08 (0.06)	2.66 (0.66)
HCD GDX	XXF	3.18 (0.46)	2.62 (0.21)	0.75 (0.02)	6.52 (2.76)	0.69 (0.03)
	XXM	3.59 (0.55)	3.07 (0.66)	0.65 (0.05)	2.16 (0.52)	1.12 (0.19)
	XYF	3.64 (0.20)	1.63 (0.54)	0.78 (0.03)	3.31 (0.68)	0.76 (0.14)
	XYM	3.46 (0.63)	0.97 (1.08)	0.68 (0.07)	7.47 (0.49)	1.78 (0.63)

Supplemental Table I. Quantification of apolipoproteins. Three representative plasma samples from each genotype and from each cohort were separated by gel electrophoresis. Protein levels of apolipoproteins were quantified by densitometry and given as mean values with standard deviation in parentheses. F, gonadal female; M, gonadal male; HCD, high cholesterol diet.

Supplemental Table II. Mouse primer sequences for qPCR

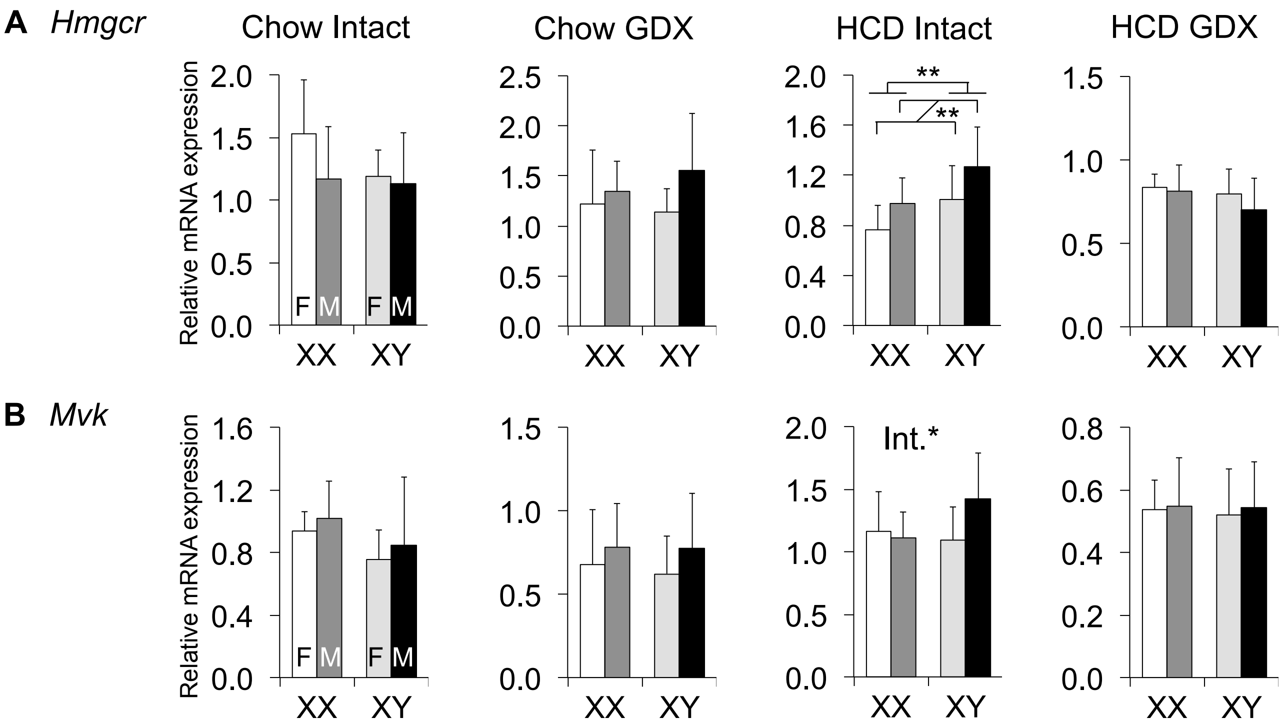
Genes	Forward primer	Reverse primer
β2m	CAGCATGGCTCGCTCGGTGAC	CGTAGCAGTTCAGTATGTTCG
Tbp	ACCCTTCACCAATGACTCCTATG	ATGATGACTGCAGCAAATCGC
Abca1	ACCAGCTTCCATCCTCCTTGT	TTGGTCCTTGGCAAAGTTCAC
Abcg1	CCTGCTCTTCTCCGGATTCTT	ATGTCGCAGTGCAGGTCTTCT
ApoB	CAGTATTCTGCCACTGCAACC	AGGACTTCACTAGATAAGGTCC
Hmgcr	ATGCCTTGTGATTGGAGTTGG	TGGACGACCCTCACGGCTTTC
Lcat	CCCACCAGCAGGATGAATACTAC	AGGCTATGCCCAATGAGGAA
Ldlr	CTTCTCCTTGGCCATCTATGAGG	CATTGGGGAGGAGGGCTGTTGT
Lipc	TGGAACACAGTGCAGACCATC	TGGAGGTCATCCAGATTTTCG
Mvk	TGACCAAGTTCCCTGAGATTG	CTTGCTCTAGACCTGGCTTC
Pltp	GGCCGTCTCAGTGCTAAGTTG	ATCACTCCGATTTGCAGCAGT
Scarb1	CGTACCTCCCAGACATGCTTC	TCTTGCTGAGTCCGTTCCATT
Cyp7a1	CAATGAAAGCAGCCTCTGAAG	AGCCTCCTTGATGATGCTATC
Cyp8b1	AAGGCTGGCTTCCTGAGCTT	AACAGCTCATCGGCCTCATC
Cyp27a1	CCACAAGGGCCTCACCTATG	GCACCTGGTCCAGCCGGGTG
Ddx3x	GGATCACGGGGTGATTCAAGAGG	CTATCTCCACGGCCACCAATGC
Eif2s3x	TTGTGCCGAGCTGACAGAATGG	CGACAGGGAGCCTATGTTGACCA
Kdm5c	ACCCACCTGGCAAAAACATTGG	ACTGTCGAAGGGGGATGCTGTG
Kdm6a	CCAATCCCCGCAGAGCTTACCT	TTGCTCGGAGCTGTTCCAAGTG

Supplemental Figure I



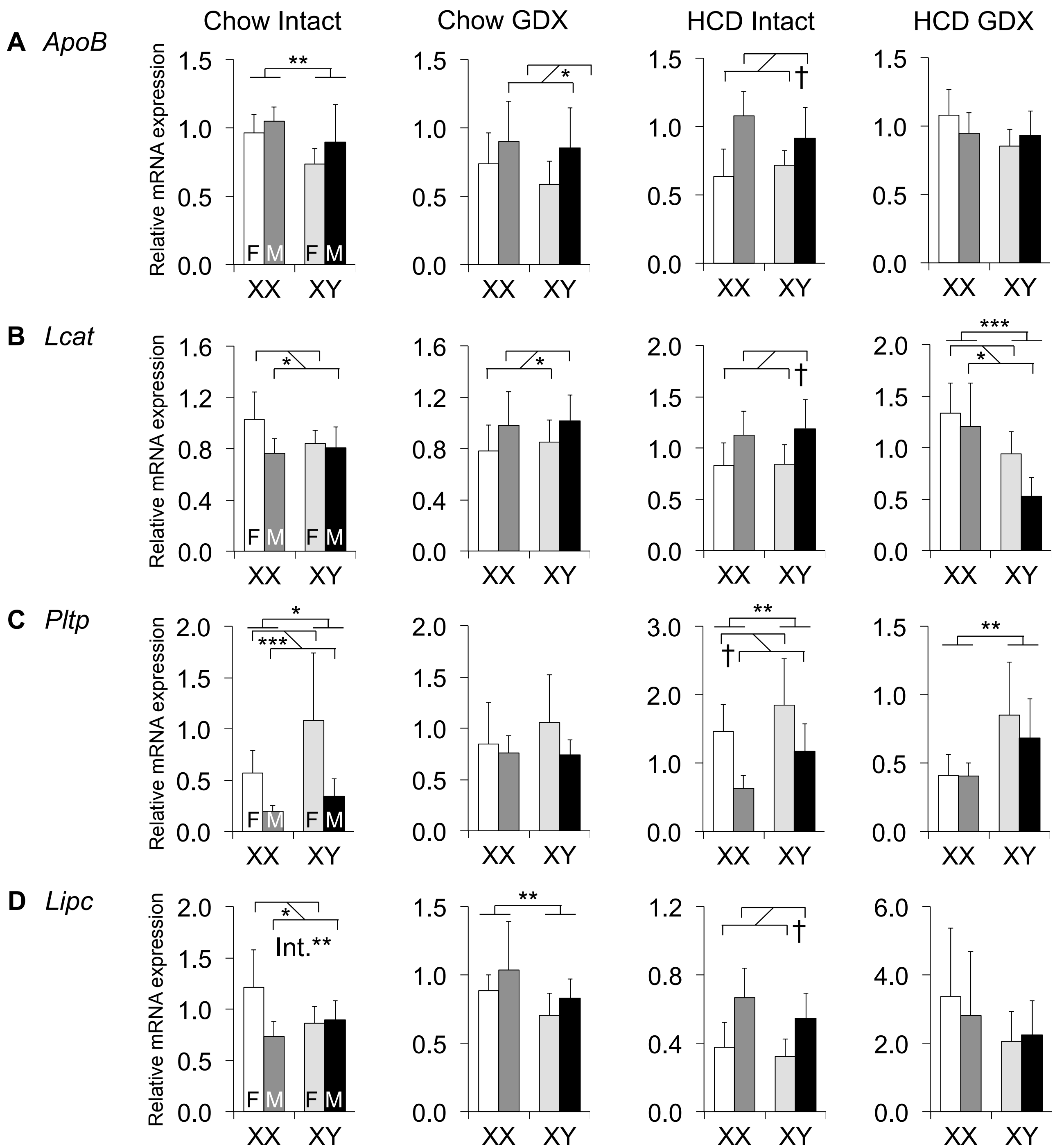
Supplemental Figure I. Plasma levels of apolipoproteins. Three representative plasma samples from each genotype and from each cohort were separated by gel electrophoresis. F, gonadal female; M, gonadal male; HCD, high cholesterol diet.

Supplemental Figure II

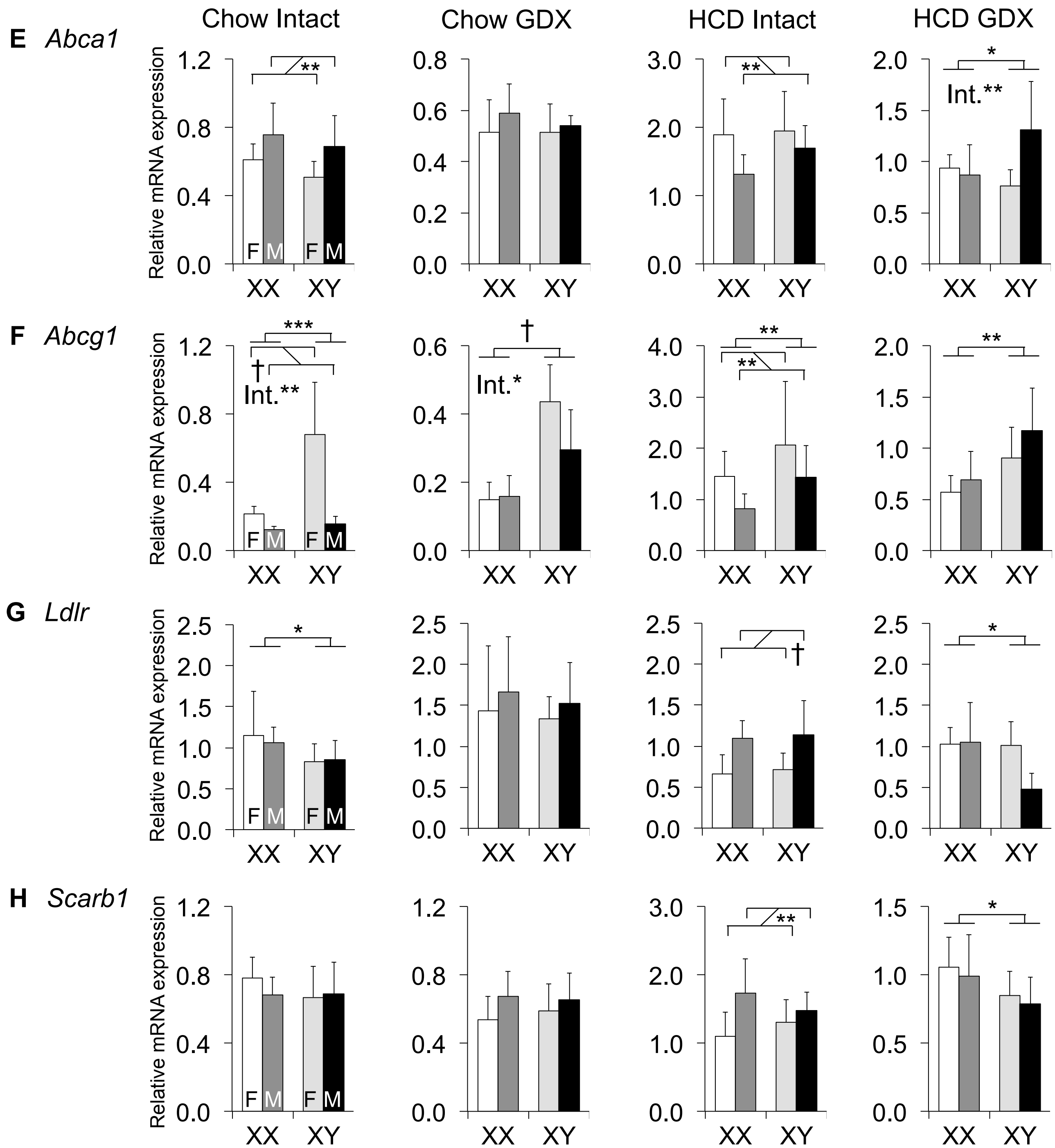


Supplemental Figure II. Key enzymes of cholesterol synthesis are not associated with sex differences in plasma cholesterol levels. Hepatic levels of *Hmgcr* (**A**) and *Mvk* (**B**) were measured by quantitative PCR. All values represent the mean ± standard deviation. Significant comparisons for sex chromosome complement and for gonadal sex are denoted by brackets. A significant interaction of sex chromosome complement and gonadal sex is denoted by "Int." *, $P \leq 0.05$; **, $P \leq 0.01$. F, gonadal female; M, gonadal male; HCD, high cholesterol diet.

Supplemental Figure III

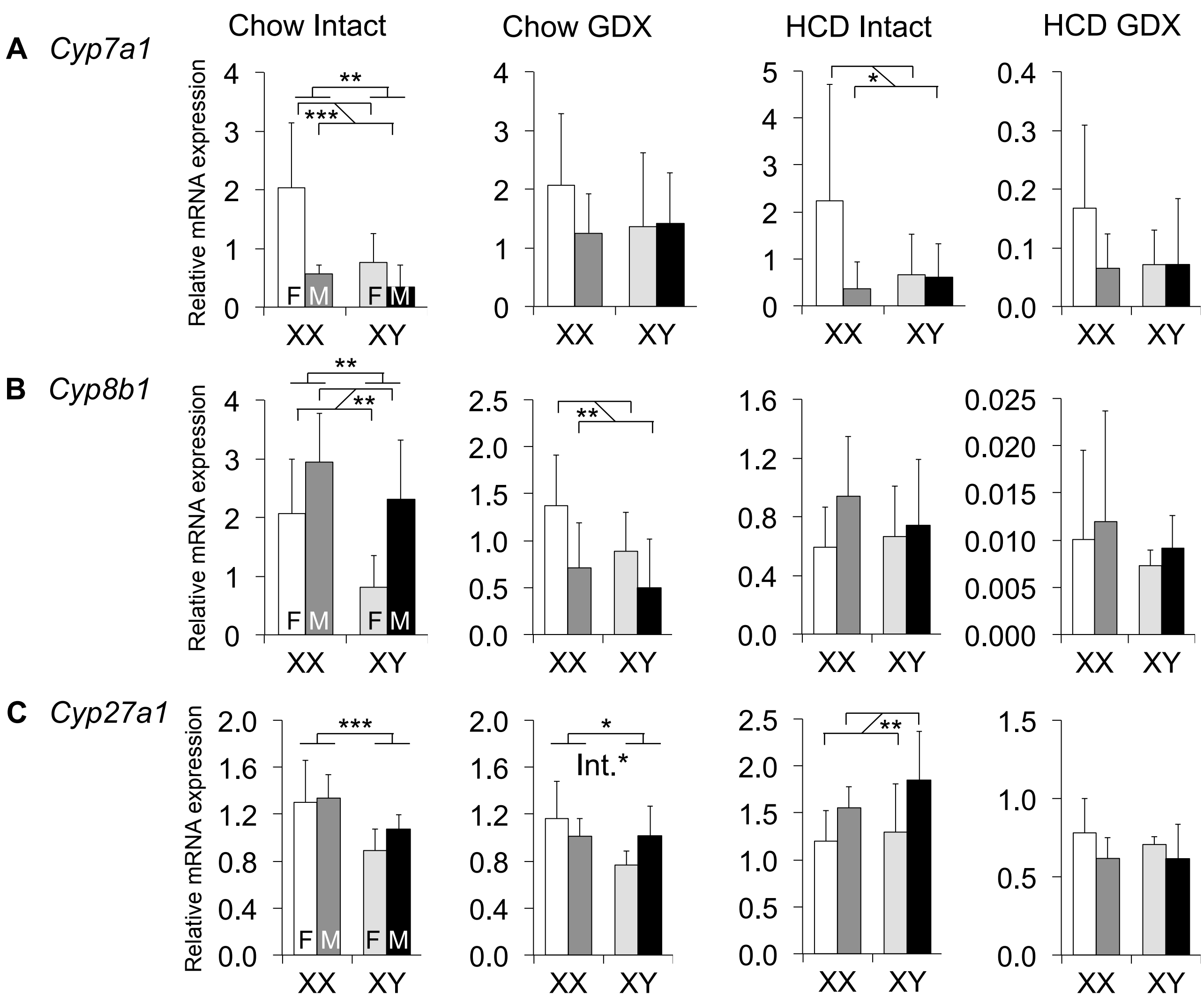


Supplemental Figure III, continued



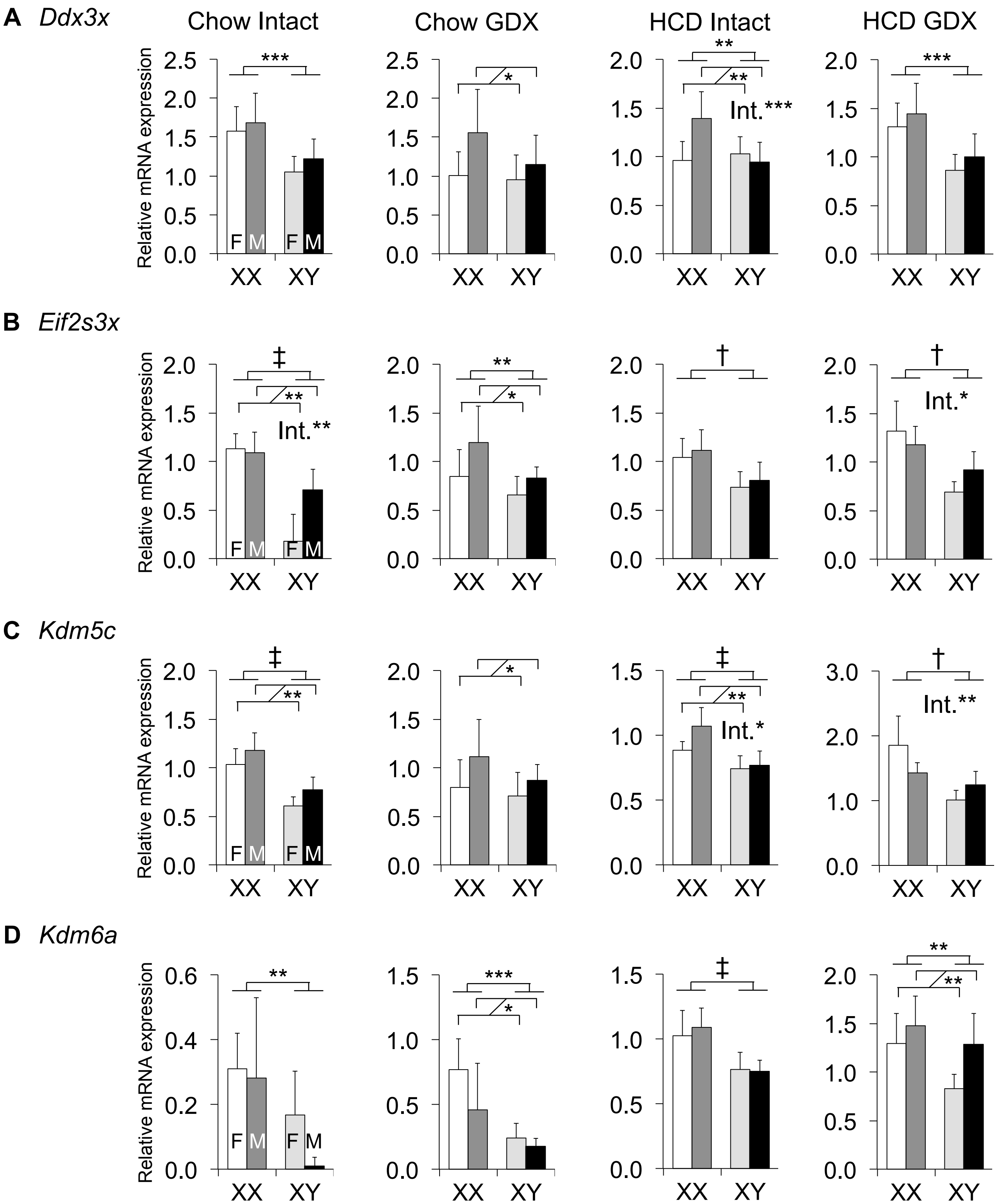
Supplemental Figure III. Components of lipoprotein synthesis, remodeling, and uptake are not associated with plasma HDL cholesterol levels. Relative mRNA expression was measured by quantitative PCR. All values represent the mean ± standard deviation. Significant comparisons for sex chromosome complement and for gonadal sex are denoted by brackets. A significant interaction of sex chromosome complement and gonadal sex is denoted by “Int.” *, $P \leq 0.05$; **, $P \leq 0.01$; ***, $P \leq 0.001$; †, $P \leq 0.0001$. F, gonadal female; M, gonadal male; HCD, high cholesterol diet.

Supplemental Figure IV



Supplemental Figure IV. Key enzymes of bile acid synthesis do not explain sex differences in plasma cholesterol levels. All values represent the mean ± standard deviation. Significant comparisons for sex chromosome complement and for gonadal sex are denoted by brackets. A significant interaction of sex chromosome complement and gonadal sex is denoted by "Int." *, *P*≤0.05; **, *P*≤0.01; ***,*P*≤0.001. F, gonadal female; M, gonadal male; HCD, high cholesterol diet.

Supplemental Figure V



Supplemental Figure V. Genes escaping X-inactivation are consistent with XX–XY differences in HDL cholesterol levels. All values represent the mean ± standard deviation. Significant comparisons for sex chromosome complement and for gonadal sex are denoted by brackets. A significant interaction of sex chromosome complement and gonadal sex is denoted by "Int." *, $P \le 0.05$; **, $P \le 0.01$; ***, $P \le 0.001$; †, $P \le 0.0001$; ‡, $P \le 0.000001$. F, gonadal female; M, gonadal male; HCD, high cholesterol diet.