

**Table S1. Scotopic a-wave data.****(A) Scotopic a-wave implicit times**

Intensity	-1.0			0.0			0.5			1.0		
	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i
<b>Group:</b>	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i
<b>Age</b>												
8	19.7±0.6	20±0.4		17.1±0.4	16.7±1.0		11.6±0.7	11.6±0.4		10.4±0.5	10.4±0.3	
10	19.1±0.2	<b>19.7±0.4 *</b>		16.9±0.3	17.1±0.5		11.4±0.2	11.7±0.4		10.3±0.3	10.5±0.3	
12	19.7±0.6	<b>20.1±0.5 *</b>		17.1±0.4	17.3±0.6		11.5±0.4	11.9±0.4		10.4±0.3	10.7±0.4	
14	18.7±0.6	<b>19.9±0.5 *</b>		16.5±0.6	16.9±0.7		11.8±1.9	11.7±0.4		10.4±0.9	10.4±0.3	
16	18.5±0.6	<b>20.1±0.3 *</b>	<b>19.6±0.4 †#</b>	16.3±0.5	16.2±1.2	<b>17.1±0.4 †#</b>	11.1±0.7	11.4±0.3	11.7±0.4	10.1±0.6	10.2±0.3	10.7±0.6
19	18.5±0.4	<b>20.2±0.4 *</b>	<b>19.5±0.6 †#</b>	16.2±0.4	<b>17.2±0.8 *</b>	<b>16.9±0.5 †</b>	10.9±0.5	<b>11.7±0.3 *</b>	<b>12.4±1.7 †</b>	9.8±0.4	10.5±0.4	10.5±0.4
22	18.7±0.2	<b>21.0±0.3 *</b>	<b>19.9±0.6 †#</b>	16.5±0.3	<b>17.9±0.8 *</b>	<b>17.4±0.6 †</b>	11.1±0.4	<b>12.2±0.3 *</b>	14.0±1.9	10.2±0.3	10.8±0.3	11.2±0.3

**(B) Scotopic a-wave amplitudes**

Intensity	-1.0			0.0			0.5			1.0		
	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i
<b>Group:</b>	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i
<b>Age</b>												
8	135±24	120±33		428±42	426±67		523±57	525±80		595±57	592±72	
10	106±31	123±25		389±62	423±56		459±69	520±62		523±86	582±74	
12	107±42	125±35		365±55	<b>452±75 *</b>		425±96	<b>558±87 *</b>		528±54	<b>628±90 *</b>	
14	108±48	136±32		372±105	451±68		440±113	<b>551±66 *</b>		497±109	<b>626±69 *</b>	
16	106±29	<b>166±28 *</b>	<b>98±30 #</b>	348±53	<b>494±62 *</b>	<b>360±61 #</b>	413±70	<b>618±69 *</b>	<b>411±74 #</b>	468±78	<b>690±82 *</b>	<b>472±92 #</b>
19	121±30	128±26	<b>96±26 #</b>	395±46	<b>449±48 *</b>	<b>381±64 #</b>	461±41	<b>544±56 *</b>	<b>420±55 #</b>	517±52	<b>616±56 *</b>	<b>480±58 #</b>
22	108±20	129±23	<b>82±22 #</b>	372±38	<b>474±47 *</b>	<b>324±59 #</b>	434±37	<b>558±58 *</b>	<b>362±78 #</b>	487±36	<b>627±66 *</b>	<b>422±86 #</b>

**(C) Maximal scotopic a-wave slope**

Intensity	-1.0			0.0			0.5			1.0		
	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i
<b>Group:</b>	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i	Lean	ZDF	ZDF-i
<b>Age</b>												
8	-8.9±2.3	-7.6±2.3		-22.7±4.1	-22.8±4.4		-43.0±7.4	-43.4±8.0		-61.8±8.6	-62.4±10.0	
10	-8.3±1.8	-7.8±1.8		-19.8±3.2	-22.1±3.1		-37.9±6.5	-41.9±5.7		-54.0±9.1	-60.1±7.1	
12	-7.4±2.1	-7.7±1.7		-19.1±4.3	<b>-23.4±5.3 *</b>		-37.3±8.4	<b>-44.8±8.9 *</b>		-55.9±9.0	<b>-64.3±11.4 *</b>	
14	-8.5±3.2	-7.9±2.1		-20.3±6.1	-22.5±4.0		-38.1±10.9	-43.1±6.3		-53.5±14.0	<b>-62.6±8.9 *</b>	
16	-9.0±4.5	-9.8±1.8	-6.9±2.0	-18.8±3.8	<b>-28.1±3.0 *</b>	<b>-17.4±4.5 #</b>	-35.3±7.1	<b>-52.3±6.1 *</b>	<b>-33.6±8.7 #</b>	-49.8±9.4	<b>-73.5±8.9 *</b>	<b>-48.3±11.6 #</b>
19	-9.2±2.8	-7.2±1.3	-6.7±2.0	-21.6±4.0	-22.6±3.2	<b>-16.4±4.4 †#</b>	-41.0±6.6	-43.4±5.7	<b>-32.5±7.5 †#</b>	-57.1±7.9	-62.7±7.1	<b>-48.5±10.4 †#</b>
22	-8.4±2.0	-7.5±1.6	-6.9±1.3	-19.6±2.4	-22.4±3.2	<b>-14.2±3.7 †#</b>	-37.4±4.8	-42.5±5.1	<b>-28.0±6.6 †#</b>	-54.2±9.5	<b>-62.9±6.1 *</b>	<b>-40.3±10.0 †#</b>

Units for intensity denoted as log cd\*s/m<sup>2</sup>; Data presented are group mean ±SD (see Table 1 for number of animals in each group at various ages); Implicit times (A) denoted in ms; Amplitude (B) denoted in μV; Slope (C) denoted in μV/0.4 ms; Age denoted in weeks.

ZDF, Zucker Diabetic Fatty rats; Lean, congenic control rats; ZDF-i, insulin treated ZDF

\* p<0.05 between Lean and ZDF

† p<0.05 between Lean and ZDF-i

# p<0.05 between ZDF and ZDF-i