

Supporting Information
for

Novel Antioxidants Protect Mitochondria from the Effects of Oligomeric Amyloid Beta and Contribute to the Maintenance of Epigenome Function

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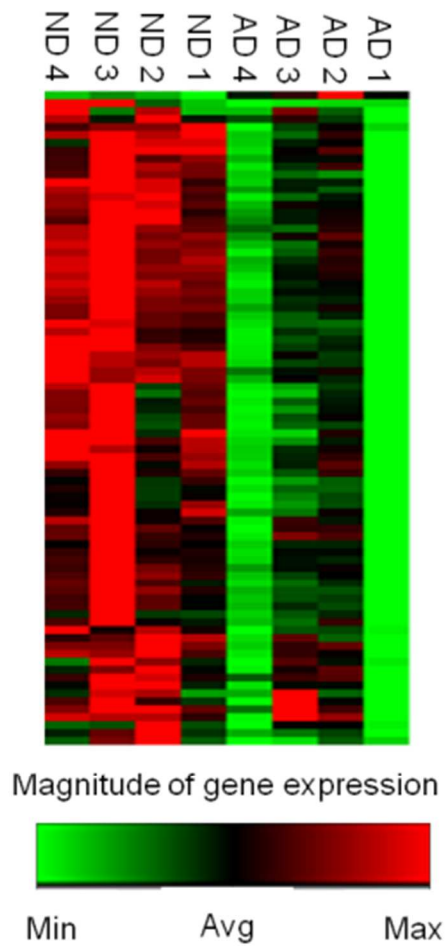


Figure S1. Heat maps of relative gene expression levels of control brain (ND) vs AD brain. Magnitude of expression depicted as a heat map with red representing higher and green lower levels of relative gene expression levels.

Gene list

	1	2	3	4	5	6	7	8	9	10	11	12
A	KDM1A	ASH1L	ATF2	AURKA	AURKB	AURKC	CARM1	CDYL	CITR	CSRP2BP	DNMT1	DNMT3A
B	DNMT3B	DOT1L	DZIF3	EHMT2	ESOM	ESCO2	HAT1	HDAC1	HDAC10	HDAC11	HDAC2	HDAC3
C	HDAC4	HDAC5	HDAC6	HDAC7	HDAC8	HDAC9	KDM5B	KDM5C	KDM4A	KDM4C	KDM6B	KAT2A
D	KAT2B	KAT5	MEIO2	MLL	MLL3	MLL5	MYSM1	KAT8	KAT7	KAT8A	KAT8B	NCOA1
E	NCOA3	NCOA6	NEK6	NEO1	PAK1	PRMT1	PRMT2	PRMT3	PRMT5	PRMT6	PRMT7	PRMT8
F	RNF2	RNF20	RPS8K43	RPS8K45	SETD1A	SETD1B	SETD2	SETD3	SETD4	SETD5	SETD6	SETD7
G	SETD8	SETD81	SETD82	SMYD3	SUN3BH1	SUN42DH1	UBE2A	UBE2B	USP16	USP21	USP22	WHSC1

Figure S2. Genes for 84 epigenetic modifying enzymes whose expression was monitored in AD brain and A β -treated neuronal cells.

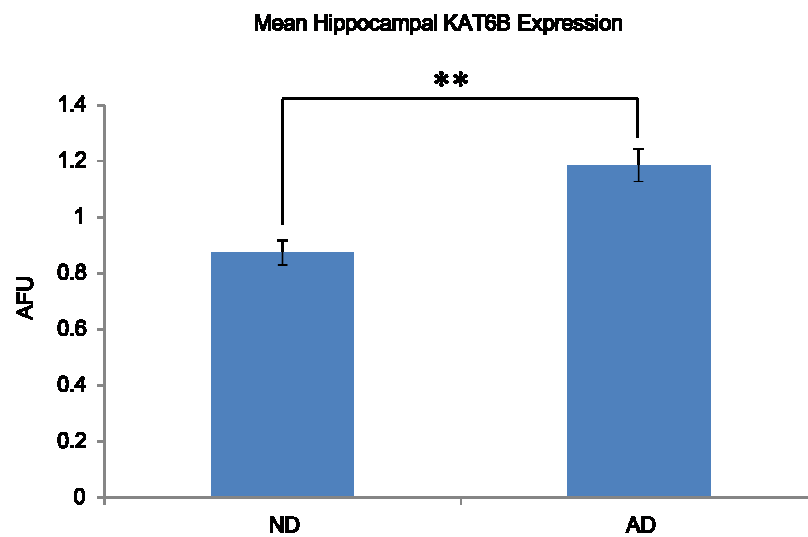
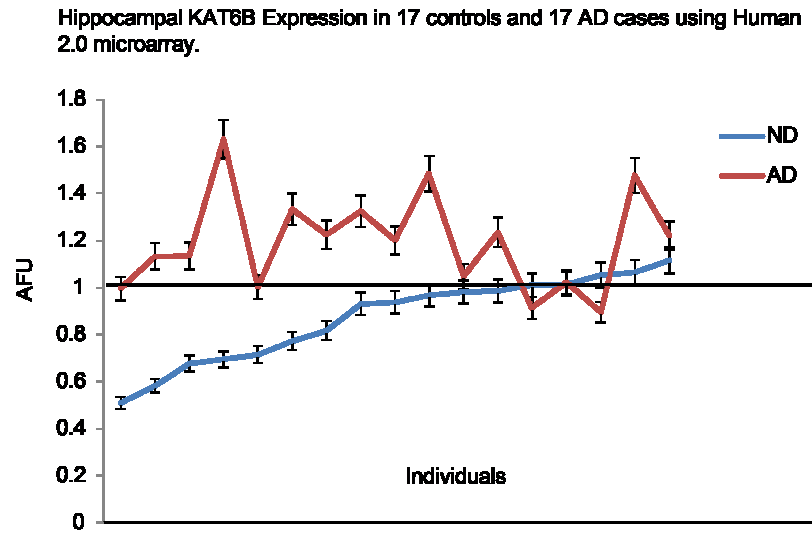


Figure S3. Hippocampal expression of histone acetyltransferase gene KAT6B in AD and normal human controls.

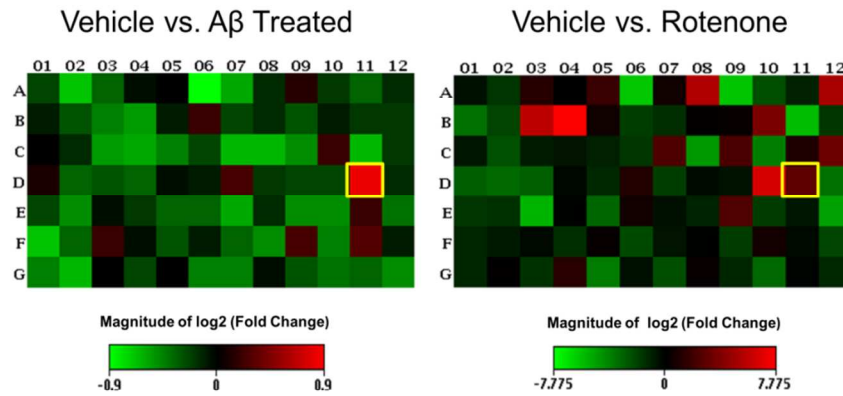


Figure S4. Heat maps, which shows the magnitude of log₂ (fold change) of 84 epigenetic transcripts in differentiated SH-SY5Y cells for (left panel) vehicle control vs. oligomeric A β O-treated (2 μ M) and (B) vehicle control vs. rotenone treated (10 nM). The data show that there is a significant correlation between 31 of the down regulated epigenetic transcripts ($r = 0.55$, $p < 0.05$) and 8 up-regulated transcripts ($r = 0.88$, $p < 0.001$). The highlighted box (KAT6B gene) represents an example of a significant ($p < 0.001$) upregulated gene.

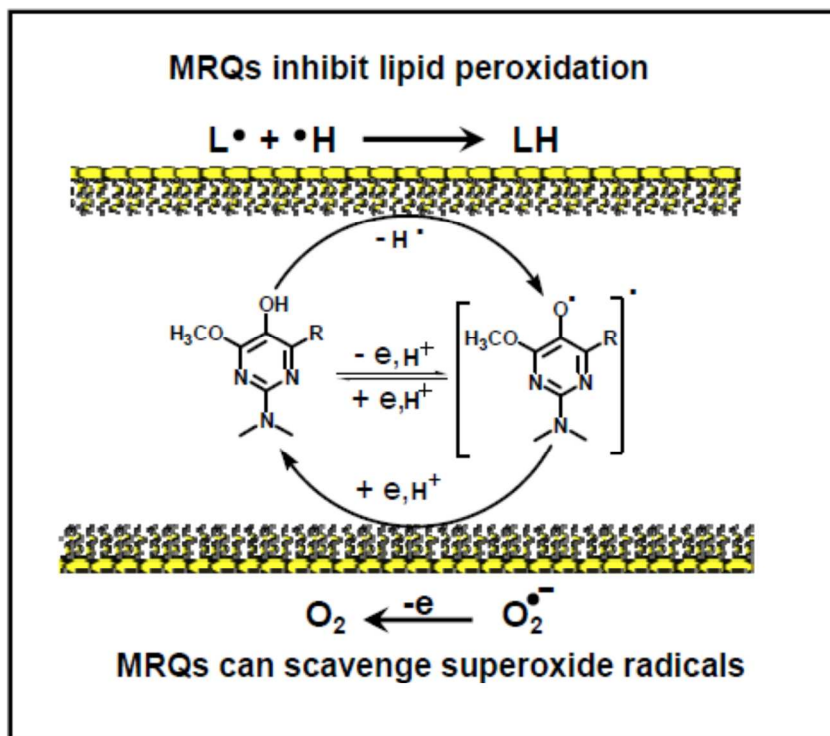


Figure S5. Proposed mechanism of action of an MRQ, involving coordinated reductive quenching of lipid radicals and oxidative quenching of superoxide.³⁴