

# Oligo GEMArray<sup>®</sup> DNA Microarray:

## Human Alzheimer's Disease

### Catalog Number

OHS-057  
EHS-057

### Format:

HybTube (Standard protocol)  
HybPlate (Higher throughput protocol)

### Description

The Oligo GEMArray<sup>®</sup> Human Alzheimer's Disease Microarray is designed for profiling the expression of 113 genes important in the onset, development, and progression of Alzheimer's disease. The array includes genes that contribute to amyloid beta-peptide (A $\beta$ ) generation, clearance and degradation, as well as genes involved in amyloid beta-peptide (A $\beta$ ) signal transduction leading to neuronal toxicity and inflammation. Through a simple side-by-side hybridization experiment you can determine differential gene expression between your samples.

### Functional Gene Groupings

#### **Beta-amyloid Generation, Oligomerization, Clearance, and Degradation:**

Secretases: ADAM10, ADAM17, ADAM9, A $\beta$ 1A, BACE1, BACE2, CTSD, NCSTN, PSEN1, PSEN2.

Other Peptidases Involved in Beta-amyloid Degradation: ECE2, IDE, MME, PLAT, PLAU, PLG.

Beta-amyloid Clearance Through Endocytosis: APLP1, APP, LRP1, LRP10, LRP3, LRP4, LRP5, LRP6, LRP8.

Other Genes Involved in Beta-amyloid Metabolism: A2M, ACHE, APBB1, APBB2, APOE, BCHE, UBQLN1.

**Microtubule and Cytoskeleton Reorganization:** APOE, MAP2, MAPT, PKP4, PRKCI, SGCA.

#### **Synaptic Formation:**

Synaptic Transmission: APBA1, APOE, CHAT, NPY, PDE7B.

Other Synaptic Functions: ACHE, APBA1, APBB1, APBB2, APOE, BDNF, SYP.

**Cholesterol Metabolism:** ABCA1, APOA1, APOE, DHCR24, LRP8, SYP.

**Lipid and Lipoprotein Metabolism:** AGPS, APOA1, APOE, CLU, HADH2, INS, LPL, LRP1, LRP5, LRP8, SNCA.

**Hormone and Hormone Processing:** BACE2, ECE2, GAL, INS, NPY, SST.

#### **Apoptosis:**

Induction of Apoptosis: APOE, CASP3, CASP4, ERN1, PRKCA, PRKCE.

Anti-apoptosis: IL1A, MPO, PRKCZ, PSEN1, SNCA.

Other Genes Involved in Apoptosis and Cell Death: APLP1, APP, APPBP1, CLU, EP300, ERN2, MAPT, PSEN2, VSNL1.

#### **Cell Cycle Regulators:**

Cell Cycle Arrest: APBB1, APBB2, ERN1.

Other Cell Cycle Genes: APBB1, APBB2, APPBP1, CDC2, CDK5, CDKL1, EP300, IL1A, PRKCA.

**Protein Kinases:** CDC2, CDK5, CDKL1, ERN1, ERN2, GSK3A, GSK3B, INSR, PRKCA, PRKCB1, PRKCD, PRKCE, PRKCG, PRKCI, PRKCQ, PRKCZ.

#### **Cell Signaling Molecules:**

Wnt Receptor Signaling: GSK3B, LRP5, LRP6.

Notch Signaling: ADAM10, A $\beta$ 1A, NCSTN, PSEN1, PSEN2.

## Product Specification Sheet

G-protein Coupled Receptor Protein Signaling: APLP2, ECE2, GNAO1, GNAZ, GNB1, GNB4, GNB5, GNG10, GNG11, GNG12, GNG13, GNG3, GNG4, GNG5, GNG7, GNG8, GNGT1, GNGT2.

Intracellular Signaling: APBA3, APBB2, APBB3, PRKCA, PRKCB1, PRKCD, PRKCE, PRKCG, PRKCI, PRKCQ, PRKCZ, PSEN1, PSEN2.

Other signaling molecules: APPBP1, GAL, GAP43, GNB2, IDE, IL1A, INSR, NPY, PLAU.

Transcription regulators: APBB1, APBB2, EGR3, EP300, ERN1, ERN2, FALZ, PHF1, TFAP4.

**Other Genes Involved in Alzheimer's disease:**

Oxidoreductases and Oxidative Stress: DHCR24, HADH2, MPO, SCARA3, UQCRC1, UQCRC2.

Proteases: ACE, CTSC, CTSD, CTSG, CTSL, SERPINA13, UQCRC2.

Protease Inhibitors: APLP2, APP, SERPINA13, SERPINA3, SPINT2

## Storage Conditions

**Please check the kit components immediately after you receive this package. SuperArray is only responsible for missing items reported within two (2) business days of receipt.**

GEArray microarrays are shipped at ambient temperature enclosed in either a HybTube or ExpressPak Storage Box. They should be stored at  $-20^{\circ}\text{C}$  upon receipt.

## References

1. Tanzi, R.E. and Bertram, L. (2005) *Cell*, **120**, 545-555.
2. Fuentealba, R.A., Farias, G., Scheu, J., Bronfman, M., Marzolo, M.P. and Inestrosa, N.C. (2004) *Brain Research Reviews*, **47**, 275-289.
3. The Ronald and Nancy Reagan Research Institute of the Alzheimer's Association and, N.I.o.A.W.G. (1998) *Neurobiology of Aging*, **19**, 109-116.
4. Bertram, L. and Tanzi, R.E. (2004) *Hum. Mol. Genet.*, ddh077.



## Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description	Gene Name
47	Hs.241431	NM_020988	GNAO1	Guanine nucleotide binding protein (G protein), alpha activating activity polypeptide O	G-ALPHA-O/GNAO
48	Hs.551502	NM_002073	GNAZ	Guanine nucleotide binding protein (G protein), alpha z polypeptide	GNAZ
49	Hs.430425	NM_002074	GNB1	Guanine nucleotide binding protein (G protein), beta polypeptide 1	GNB1
50	Hs.185172	NM_005273	GNB2	Guanine nucleotide binding protein (G protein), beta polypeptide 2	GNB2
51	Hs.270543	NM_021629	GNB4	Guanine nucleotide binding protein (G protein), beta polypeptide 4	GNB4
52	Hs.155090	NM_016194	GNB5	Guanine nucleotide binding protein (G protein), beta 5	GNB5
53	Hs.534196	NM_004125	GNG10	Guanine nucleotide binding protein (G protein), gamma 10	GNG10
54	Hs.83381	NM_004126	GNG11	Guanine nucleotide binding protein (G protein), gamma 11	G PROTEIN
55	Hs.431101	NM_018841	GNG12	Guanine nucleotide binding protein (G protein), gamma 12	FLJ34695
56	Hs.247888	NM_016541	GNG13	Guanine nucleotide binding protein (G protein), gamma 13	H2-35
57	Hs.179915	NM_012202	GNG3	Guanine nucleotide binding protein (G protein), gamma 3	GNG3
58	Hs.159711	NM_004485	GNG4	Guanine nucleotide binding protein (G protein), gamma 4	GNG4
59	Hs.513557	NM_005274	GNG5	Guanine nucleotide binding protein (G protein), gamma 5	GNG5
60	Hs.515544	NM_005145	GNG7	Guanine nucleotide binding protein (G protein), gamma 7	FLJ00058
61	Hs.283961	NM_033258	GNG8	Guanine nucleotide binding protein (G protein), gamma 8	GNG8
62	Hs.552572	NM_021955	GNGT1	Guanine nucleotide binding protein (G protein), gamma transducing activity polypeptide 1	GNB1
63	Hs.181781	NM_031498	GNGT2	Guanine nucleotide binding protein (G protein), gamma transducing activity polypeptide 2	G-GAMMA-8/G-GAMMA-C
64	Hs.466828	NM_019884	GSK3A	Glycogen synthase kinase 3 alpha	DKFZP686D0638
65	Hs.445733	NM_002093	GSK3B	Glycogen synthase kinase 3 beta	GSK3
66	Hs.171280	NM_004493	HADH2	Hydroxyacyl-Coenzyme A dehydrogenase, type II	17B-HSD10/ABAD
67	Hs.500546	NM_004969	IDE	Insulin-degrading enzyme	INSULYSIN
68	Hs.1722	NM_000575	IL1A	Interleukin 1, alpha	IL-1A/IL1
69	Hs.89832	NM_000207	INS	Insulin	PROINSULIN
70	Hs.465744	NM_000208	INSR	Insulin receptor	INSR
71	Hs.180878	NM_000237	LPL	Lipoprotein lipase	LIPD
72	Hs.162757	NM_002332	LRP1	Low density lipoprotein-related protein 1 (alpha-2-macroglobulin receptor)	A2MRA/POER
73	Hs.525232	NM_014045	LRP10	Low density lipoprotein receptor-related protein 10	MST087/MSTP087
74	Hs.515340	NM_002333	LRP3	Low density lipoprotein receptor-related protein 3	LOC388530
75	Hs.4930	NM_002334	LRP4	Low density lipoprotein receptor-related protein 4	LRP10/MEGF7
76	Hs.6347	NM_002335	LRP5	Low density lipoprotein receptor-related protein 5	BMND1/HBM
77	Hs.210343	NM_002336	LRP6	Low density lipoprotein receptor-related protein 6	LRP6
78	Hs.444637	NM_004631	LRP8	Low density lipoprotein receptor-related protein 8, apolipoprotein E receptor	AP0ER2/HSZ75190
79	Hs.368281	NM_031846	MAP2	Microtubule-associated protein 2	MAP2A/MAP2B
80	Hs.101174	NM_173727	MAPT	Microtubule-associated protein tau	DDPAC/FTDP-17
81	Hs.307734	NM_000902	MME	Membrane metallo-endopeptidase (neutral endopeptidase, enkephalinase, CALLA, CD10)	CALLA/CD10
82	Hs.458272	NM_000250	MPO	Myeloperoxidase	myeloperoxidase
83	Hs.517249	NM_015331	NCSTN	Nicastrin	APH2
84	Hs.1832	NM_000905	NPY	Neuropeptide Y	PYY4
85	Hs.546364	NM_018945	PDE7B	Phosphodiesterase 7B	BA472E5.1
86	Hs.166204	NM_002636	PHF1	PHD finger protein 1	PHF2
87	Hs.407580	NM_003628	PKP4	Plakophilin 4	P0071
88	Hs.491582	NM_000930	PLAT	Plasminogen activator, tissue	T-PA/TPA
89	Hs.77274	NM_002658	PLAU	Plasminogen activator, urokinase	ATFU/PA
90	Hs.143436	NM_000301	PLG	Plasminogen	LOC401270
91	Hs.531704	NM_002737	PRKCA	Protein kinase C, alpha	PKC-ALPHA/PKCA
92	Hs.460355	NM_002738	PRKCB1	Protein kinase C, beta 1	PKC-BETA/PKCB
93	Hs.155342	NM_006254	PRKCD	Protein kinase C, delta	MAY1/NPKC-DELTA
94	Hs.97432	NM_005400	PRKCE	Protein kinase C, epsilon	NPKC-EPSILON/PKCE
95	Hs.2890	NM_002739	PRKCG	Protein kinase C, gamma	PKC-GAMMA/PKCC
96	Hs.478199	NM_002740	PRKCI	Protein kinase C, iota	DXS1179E/NPKC-IOTA
97	Hs.498570	NM_006257	PRKCT	Protein kinase C, theta	NPKC-THETA/PRKCT
98	Hs.496255	NM_002744	PRKCZ	Protein kinase C, zeta (PRKCZ), mRNA	PKCZ
99	Hs.3260	NM_000021	PSEN1	Presenilin 1 (Alzheimer disease 3)	AD3/FAD
100	Hs.25363	NM_000447	PSEN2	Presenilin 2 (Alzheimer disease 4)	AD3L/AD4
101	Hs.128856	NM_182826	SCARA3	Scavenger receptor class A, member 3	APC7/CSR
102	Hs.527795	NM_207378	SERPINA13	Serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 13	UNC06121
103	Hs.534293	NM_001085	SERPINA3	Serine (or cysteine) proteinase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 3	ACT/AACT
104	Hs.463412	NM_000023	SGCA	Sarcoglycan, alpha (50kDa dystrophin-associated glycoprotein)	50-DAG/A2
105	Hs.271771	NM_000345	SNCA	Synuclein, alpha (non A4 component of amyloid precursor)	NACP/PARK1
106	Hs.90297	NM_003085	SNCB	Synuclein, beta	SNCB
107	Hs.31439	NM_021102	SPINT2	Serine protease inhibitor, Kunitz type, 2	HAI-2/HAI2
108	Hs.12409	NM_001048	SST	Somatostatin	SMST
109	Hs.75667	NM_003179	SYP	Synaptophysin	Syp
110	Hs.513305	NM_003223	TFAP4	Transcription factor AP-4 (activating enhancer binding protein 4)	Ap-4
111	Hs.9589	NM_013438	UBQLN1	Ubiquilin 1	DA41/DSK2
112	Hs.119251	NM_003365	UQCRC1	Ubiquinol-cytochrome c reductase core protein I	D3S3191
113	Hs.528803	NM_003366	UQCRC2	Ubiquinol-cytochrome c reductase core protein II	UQCRC2
114	Hs.444212	NM_003385	YSNL1	Visinin-like 1	HLP3/HPCAL3
115	N/A	L08752	PUC18	PUC18 Plasmid DNA	pUC18
116	Blank	Blank	Blank	Blank	
117	Blank	Blank	Blank	Blank	
118	N/A	N/A	AS1R2	Artificial Sequence 1 Related 2 (80% identity)(48/60)	N/A
119	N/A	N/A	AS1R1	Artificial Sequence 1 Related 1 (90% identity)(56/60)	N/A
120	N/A	N/A	AS1	Artificial Sequence 1	N/A
121	Hs.544577	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase	G3PD/GAPD
122	Hs.534255	NM_004048	B2M	Beta-2-microglobulin	B2M
123	Hs.509736	NM_007355	HSPCB	Heat shock 90kDa protein 1, beta	BETA/D6S182
124	Hs.509736	NM_007355	HSPCB	Heat shock 90kDa protein 1, beta	BETA/D6S182
125	Hs.520640	NM_001101	ACTB	Actin, beta	b-Actin
126	Hs.520640	NM_001101	ACTB	Actin, beta	b-Actin
127	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary sequence	N/A
128	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary sequence	N/A