## Supplementary Data

# *CNP* and *DPYSL2* mRNA Expression and Promoter Methylation Levels in Brain of Alzheimer's Disease Patients

Patrícia Natalia Silva[a], Tatiane Katsue Furuya[a], Ianna Sampaio Braga[a], Lucas Trevizani Rasmussen[c], Roger Willian de Labio[c], Paulo Henrique Bertolucci[b], Elizabeth Suchi Chen[a], Gustavo Turecki[d], Naguib Mechawar[d], Spencer Luiz Payão[a,c], Jonathan Mill[e] and Marília Cardoso Smith[a,*]

[a]*Disciplina de Genética, Departamento de Morfologia e Genética, Universidade Federal de São Paulo (UNIFESP), São Paulo-SP, Brazil*
[b]*Disciplina de Neurologia Clínica, Departamento de Neurologia e Neurocirurgia (UNIFESP), São Paulo, SP, Brazil*
[c]*Laboratório de Genética, Hemocentro, Faculdade de Medicina de Marília (FAMEMA), Marília, SP, Brazil*
[d]*Psychiatry Department, Douglas Hospital Research Center, McGill University, Montreal, Canada*
[e]*Institute of Psychiatry, King's College, London, UK*

*Correspondence to: Prof. Dr. Marília de Arruda Cardoso Smith, Disciplina de Genética, Departamento de Morfologia e Genética, UNIFESP/EPM, Rua Botucatu, 740, Edifício Leitão da Cunha, 1° andar, CEP 04023-900, São Paulo, SP, Brazil. Tel./Fax: +5511 5576 4260/5576 4264; E-mail: macsmith.morf@epm.br.

Supplementary Table 1
CNP promoter CpGs methylation in auditory cortex, entorhinal cortex, and hippocampus in Alzheimer's disease (AD) and control groups

| Brain Region | CpG analyzed | Group | $n$ | Mean | SD | Median | Minimum | Maximum | $p$ |
|---|---|---|---|---|---|---|---|---|---|
| Auditory cortex | CpG 1 | AD | 12 | 0.01 | 0.02 | 0.01 | 0.00 | 0.04 | 0.590 |
| | | Healthy elderly | 9 | 0.01 | 0.01 | 0.01 | 0.00 | 0.03 | |
| | CpG 2 and 3 | AD | 12 | 0.02 | 0.01 | 0.03 | 0.01 | 0.05 | 0.610 |
| | | Healthy elderly | 8 | 0.02 | 0.01 | 0.02 | 0.01 | 0.04 | |
| | CpG 4 | AD | 12 | 0.04 | 0.01 | 0.04 | 0.01 | 0.06 | 0.830 |
| | | Healthy elderly | 10 | 0.04 | 0.02 | 0.05 | 0.00 | 0.05 | |
| | CpG 5 and 6 | AD | 12 | 0.03 | 0.01 | 0.03 | 0.01 | 0.06 | 0.760 |
| | | Healthy elderly | 10 | 0.03 | 0.01 | 0.03 | 0.01 | 0.04 | |
| | CpG 7 | AD | 12 | 0.07 | 0.02 | 0.08 | 0.03 | 0.12 | 0.180 |
| | | Healthy elderly | 10 | 0.06 | 0.02 | 0.07 | 0.03 | 0.08 | |
| | CpG 8 | AD | 12 | 0.06 | 0.04 | 0.05 | 0.03 | 0.17 | 0.180 |
| | | Healthy elderly | 8 | 0.04 | 0.01 | 0.04 | 0.03 | 0.05 | |
| | CpG 10 | AD | 12 | 0.02 | 0.01 | 0.02 | 0.00 | 0.05 | 0.960 |
| | | Healthy elderly | 9 | 0.02 | 0.01 | 0.02 | 0.00 | 0.04 | |
| | CpG 11 and 12 | AD | 12 | 0.04 | 0.02 | 0.04 | 0.02 | 0.08 | 0.610 |
| | | Healthy elderly | 10 | 0.05 | 0.02 | 0.04 | 0.02 | 0.08 | |
| | CpG 13 and 14 | AD | 12 | 0.05 | 0.02 | 0.05 | 0.00 | 0.07 | 0.470 |
| | | Healthy elderly | 9 | 0.05 | 0.01 | 0.05 | 0.04 | 0.06 | |
| | CpG 15 | AD | 12 | 0.01 | 0.01 | 0.02 | 0.00 | 0.02 | 0.580 |
| | | Healthy elderly | 10 | 0.02 | 0.01 | 0.02 | 0.01 | 0.03 | |
| Entorhinal cortex | CpG 1 | AD | 11 | 0.01 | 0.01 | 0.01 | 0.00 | 0.05 | 0.620 |
| | | Healthy elderly | 8 | 0.02 | 0.01 | 0.01 | 0.01 | 0.03 | |
| | CpG 2 and 3 | AD | 11 | 0.03 | 0.02 | 0.03 | 0.01 | 0.07 | 0.520 |
| | | Healthy elderly | 9 | 0.02 | 0.01 | 0.03 | 0.01 | 0.05 | |
| | CpG 4 | AD | 12 | 0.04 | 0.02 | 0.04 | 0.00 | 0.08 | 0.610 |
| | | Healthy elderly | 10 | 0.03 | 0.02 | 0.03 | 0.00 | 0.06 | |
| | CpG 5 and 6 | AD | 11 | 0.03 | 0.02 | 0.03 | 0.01 | 0.06 | 0.360 |
| | | Healthy elderly | 10 | 0.03 | 0.01 | 0.03 | 0.01 | 0.04 | |
| | CpG 7 | AD | 11 | 0.05 | 0.03 | 0.05 | 0.00 | 0.10 | 0.770 |
| | | Healthy elderly | 10 | 0.06 | 0.02 | 0.07 | 0.00 | 0.08 | |
| | CpG 8 | AD | 10 | 0.05 | 0.02 | 0.05 | 0.03 | 0.09 | 0.290 |
| | | Healthy elderly | 9 | 0.07 | 0.03 | 0.05 | 0.03 | 0.11 | |
| | CpG 10 | AD | 12 | 0.01 | 0.01 | 0.01 | 0.00 | 0.04 | 0.460 |
| | | Healthy elderly | 10 | 0.02 | 0.01 | 0.02 | 0.00 | 0.04 | |
| | CpG 11 and 12 | AD | 11 | 0.05 | 0.02 | 0.05 | 0.02 | 0.08 | 0.580 |
| | | Healthy elderly | 10 | 0.04 | 0.02 | 0.04 | 0.02 | 0.07 | |
| | CpG 13 and 14 | AD | 12 | 0.04 | 0.02 | 0.05 | 0.00 | 0.07 | 0.940 |
| | | Healthy elderly | 10 | 0.04 | 0.02 | 0.05 | 0.01 | 0.07 | |
| | CpG 15 | AD | 10 | 0.02 | 0.01 | 0.02 | 0.00 | 0.03 | 0.340 |
| | | Healthy elderly | 10 | 0.01 | 0.00 | 0.01 | 0.01 | 0.02 | |
| Hippocampus | CpG 1 | AD | 12 | 0.02 | 0.02 | 0.01 | 0.00 | 0.06 | 0.600 |
| | | Healthy elderly | 9 | 0.01 | 0.02 | 0.01 | 0.00 | 0.05 | |
| | CpG 2 and 3 | AD | 12 | 0.02 | 0.01 | 0.03 | 0.01 | 0.04 | 0.210 |
| | | Healthy elderly | 10 | 0.02 | 0.01 | 0.02 | 0.01 | 0.03 | |
| | CpG 4 | AD | 12 | 0.04 | 0.01 | 0.04 | 0.00 | 0.05 | 0.510 |
| | | Healthy elderly | 10 | 0.04 | 0.01 | 0.04 | 0.03 | 0.06 | |
| | CpG 5 and 6 | AD | 12 | 0.03 | 0.01 | 0.03 | 0.01 | 0.05 | 0.070 |
| | | Healthy elderly | 10 | 0.02 | 0.01 | 0.02 | 0.01 | 0.04 | |
| | CpG 7 | AD | 12 | 0.06 | 0.02 | 0.06 | 0.04 | 0.09 | 0.920 |
| | | Healthy elderly | 10 | 0.06 | 0.02 | 0.06 | 0.03 | 0.08 | |
| | CpG 8 | AD | 12 | 0.05 | 0.02 | 0.05 | 0.03 | 0.10 | 0.770 |
| | | Healthy elderly | 10 | 0.06 | 0.02 | 0.06 | 0.03 | 0.11 | |
| | CpG 10 | AD | 12 | 0.01 | 0.01 | 0.01 | 0.00 | 0.04 | 0.840 |
| | | Healthy elderly | 10 | 0.01 | 0.01 | 0.01 | 0.00 | 0.04 | |
| | CpG 11 and 12 | AD | 12 | 0.04 | 0.02 | 0.04 | 0.02 | 0.08 | 0.940 |
| | | Healthy elderly | 9 | 0.04 | 0.01 | 0.03 | 0.03 | 0.06 | |
| | CpG 13 and 14 | AD | 12 | 0.05 | 0.01 | 0.05 | 0.04 | 0.06 | 0.660 |
| | | Healthy elderly | 10 | 0.05 | 0.02 | 0.05 | 0.03 | 0.09 | |
| | CpG 15 | AD | 12 | 0.02 | 0.01 | 0.02 | 0.01 | 0.03 | 0.010 |
| | | Healthy elderly | 10 | 0.01 | 0.01 | 0.01 | 0.00 | 0.02 | |

$n$, number of analyzed samples; SD, standard deviation; $p$, $p$-value of the Student-$t$ test.

Supplementary Table 2
*DPYSL2* promoter CpGs methylation in auditory cortex, entorhinal cortex, and hippocampus in Alzheimer's disease (AD) and control groups

| Brain Region | CpG analyzed | Group | N | Mean | SD | Median | Minimum | Maximum | p |
|---|---|---|---|---|---|---|---|---|---|
| Auditory cortex | CpG 1 e 2 | AD | 9 | 0.03 | 0.02 | 0.03 | 0.00 | 0.06 | 0.880 |
| | | Healthy elderly | 8 | 0.04 | 0.03 | 0.03 | 0.01 | 0.1 | |
| | CpG 5 | AD | 9 | 0.01 | 0.01 | 0.00 | 0.00 | 0.02 | 0.850 |
| | | Healthy elderly | 8 | 0.01 | 0.01 | 0.01 | 0.00 | 0.02 | |
| | CpG 6 | AD | 10 | 0.01 | 0.01 | 0.01 | 0.00 | 0.03 | 0.460 |
| | | Healthy elderly | 8 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | |
| | CpG 7 | AD | 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.540 |
| | | Healthy elderly | 9 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | |
| | CpG 8 e 9 | AD | 10 | 0.04 | 0.01 | 0.04 | 0.02 | 0.07 | 0.930 |
| | | Healthy elderly | 9 | 0.04 | 0.01 | 0.04 | 0.03 | 0.06 | |
| | CpG 10 e 11 | AD | 9 | 0.06 | 0.02 | 0.05 | 0.04 | 0.1 | 0.480 |
| | | Healthy elderly | 8 | 0.05 | 0.01 | 0.05 | 0.03 | 0.07 | |
| | CpG 12 e 13 | AD | 10 | 0.05 | 0.02 | 0.05 | 0.02 | 0.1 | 0.810 |
| | | Healthy elderly | 9 | 0.04 | 0.02 | 0.05 | 0.01 | 0.07 | |
| | CpG 16 e 17 | AD | 10 | 0.04 | 0.01 | 0.04 | 0.02 | 0.07 | 0.930 |
| | | Healthy elderly | 9 | 0.04 | 0.01 | 0.04 | 0.03 | 0.06 | |
| Entorhinal cortex | CpG 1 e 2 | AD | 8 | 0.03 | 0.02 | 0.03 | 0.00 | 0.08 | 0.410 |
| | | Healthy elderly | 8 | 0.11 | 0.24 | 0.02 | 0.00 | 0.71 | |
| | CpG 5 | AD | 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.510 |
| | | Healthy elderly | 8 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | |
| | CpG 6 | AD | 10 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.360 |
| | | Healthy elderly | 8 | 0.01 | 0.01 | 0.01 | 0.00 | 0.03 | |
| | CpG 7 | AD | 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.180 |
| | | Healthy elderly | 7 | 0.01 | 0.01 | 0.01 | 0.00 | 0.02 | |
| | CpG 8 e 9 | AD | 10 | 0.03 | 0.01 | 0.04 | 0.02 | 0.05 | 0.090 |
| | | Healthy elderly | 8 | 0.04 | 0.01 | 0.04 | 0.03 | 0.05 | |
| | CpG 10 e 11 | AD | 9 | 0.04 | 0.02 | 0.04 | 0.00 | 0.05 | 0.720 |
| | | Healthy elderly | 8 | 0.06 | 0.03 | 0.06 | 0.00 | 0.11 | |
| | CpG 12 e 13 | AD | 10 | 0.05 | 0.05 | 0.04 | 0.01 | 0.17 | 0.850 |
| | | Healthy elderly | 8 | 0.07 | 0.06 | 0.05 | 0.02 | 0.19 | |
| | CpG 16 e 17 | AD | 10 | 0.03 | 0.01 | 0.04 | 0.02 | 0.05 | 0.090 |
| | | Healthy elderly | 8 | 0.04 | 0.01 | 0.04 | 0.03 | 0.05 | |
| Hippocampus | CpG 1 e 2 | AD | 11 | 0.11 | 0.23 | 0.03 | 0.00 | 0.78 | 0.560 |
| | | Healthy elderly | 7 | 0.05 | 0.08 | 0.02 | 0.00 | 0.22 | |
| | CpG 5 | AD | 9 | 0.01 | 0.01 | 0.01 | 0.00 | 0.02 | 0.460 |
| | | Healthy elderly | 9 | 0.00 | 0.01 | 0.00 | 0.00 | 0.02 | |
| | CpG 6 | AD | 11 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.740 |
| | | Healthy elderly | 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | |
| | CpG 7 | AD | 11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.370 |
| | | Healthy elderly | 9 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | |
| | CpG 8 e 9 | AD | 11 | 0.03 | 0.01 | 0.04 | 0.00 | 0.05 | 0.160 |
| | | Healthy elderly | 9 | 0.03 | 0.02 | 0.03 | 0.00 | 0.06 | |
| | CpG 10 e 11 | AD | 9 | 0.05 | 0.04 | 0.05 | 0.00 | 0.15 | 0.380 |
| | | Healthy elderly | 8 | 0.10 | 0.06 | 0.08 | 0.04 | 0.19 | |
| | CpG 12 e 13 | AD | 11 | 0.05 | 0.03 | 0.04 | 0.01 | 0.1 | 0.430 |
| | | Healthy elderly | 9 | 0.08 | 0.04 | 0.06 | 0.04 | 0.17 | |
| | CpG 16 e 17 | AD | 11 | 0.03 | 0.01 | 0.04 | 0.00 | 0.05 | 0.160 |
| | | Healthy elderly | 9 | 0.03 | 0.02 | 0.03 | 0.00 | 0.06 | |

*n*, number of analyzed samples; SD, standard deviation; *p*, *p*-value of the Student-*t* test.