All statistics for manuscript Haugland et al. 2019

| Figure no | Test used | Page n | df | p-value |
|-----------|-----------|--------|----|---------|
| **p-Stat5** | | | | |
| 2E | One-way ANOVA of number of p-Stat5 positive DAPI cells | 5 | 15,12,12 cells | F(2, 16) = 6.34 | 0.004 |
| | Bonferroni’s comparison between GH and control | 5 | 15,12 cells | t(36) = -2.59 | 0.013 (1-tailed) |
| | Bonferroni’s comparison between aGH and control | 5 | 12,12 cells | t(36) = -0.70 | 0.48 (1-tailed) |
| Suppl 3 | One-way ANOVA of number of p-Stat5 positive DAPI cells | 5 | 9,18,12 cells | F(2, 36) = 3.68 | 0.035 |
| | Bonferroni’s comparison between GH and control | 5 | 9,18 cells | t(36) = -2.61 | 0.020 (1-tailed) |
| | Bonferroni’s comparison between aGH and control | 5 | 18,12 cells | t(36) = -0.25 | 0.49 (1-tailed) |

| **SPINE DENSITY STATISTICS** | | | All t values are absolute values |
| 3C | Jonckheere-Terpstra Test neuron level | 6 | 22, 8, 15 neurons | J = 530 | <0.001 |
| | Mann-Whitney U aGH vs control | 6 | 22, 8 neurons | Z = 1.92 | 0.03 (1-tailed) |
| | Mann-Whitney U aGH vs GH | 6 | 8, 15 neurons | Z = 2.58 | 0.005 (1-tailed) |
| | Jonckheere-Terpstra Test animal level | 6 | 4, 3, 3 rats | J = 52 | 0.003 |
| 3D | One-way ANOVA, percentage of filopodial-like spines | 7 | 13, 8, 8, 8 rats in each group | F(3, 78) = 8.74 | <0.001 |
| 4D | Repeated measures ANOVA, percentage of mature spines | 7 | 13, 8, 7, 8 rats in each group | F(2, 25) = 4.61 | 0.014 (1-tailed) |
| 4E | Repeated measures ANOVA, percentage of immature spines | 7 | 13, 8, 8, 8 rats in each group | F(2, 25) = 4.61 | 0.014 (1-tailed) |
| 4F | Post-hoc contrast t-test aGH vs control | 7 | 13, 8, 8, 8 rats in each group | t(36) = -2.95 | 0.006 (1-tailed) |

| **WATER MAZE STATISTICS** | | All differences between merged control groups in water maze |
| 4A | Repeated measures ANOVA of time in platform zone | 7 | 13, 8, 8 rats in each group | F(2.16) = 1.28 | 0.29 |
| 4B | Two-way ANOVA effect of SW target Zone | 7 | 13, 8, 8 rats in each group | F(3, 78) = 29.11 | <0.001 |
| 4C | Two-way ANOVA SW Zone x Group interaction | 7 | 13, 8, 8 rats in each group | F(3, 78) = 3.59 | 0.008 |
| 4D | Post-hoc orthogonal comparison GH vs control | 7 | 8, 13 rats in each group | t(26) = 0.34 | 0.009 (1-tailed) |
| 4E | Post-hoc orthogonal comparison aGH vs other two groups | 7 | 8, 21 rats in each group | t(26) = 2.95 | 0.004 (1-tailed) |
| 4F | Repeated measures ANOVA of time in SW zone | 7 | 13, 8, 8 rats in each group | F(2.26) = 161 | 0.007 (1-tailed) |

| **SPONTANEOUS LOCATION RECOGNITION (SLR) STATISTICS** | | Comparison between unoperated and AAV controls before groups were merged |
| 5A | Paired samples t-test, time with novel and familiar obj, GH group | 9 | 8 rats in each group | t(7) = 3.78 | 0.004 (1-tailed) |
| | Paired samples t-test, time with novel and familiar obj, aGH group | 9 | 8 rats in each group | t(7) = 3.41 | 0.006 (1-tailed) |
| | Paired samples t-test, time with novel and familiar obj, control group | 9 | 12 rats in each group | t(11) = 2.50 | 0.013 (1-tailed) |
| | One-way ANOVA of discrimination ratio | 9 | 8, 8, 12 rats in each group | F(2,25) = 1.16 | 0.330 |
| 5B | Condition square arena, 3 hours delay | 9 | 8, 13, 8 rats in each group | F(3, 78) = 2.56 | 0.019 (1-tailed) |
| | Paired samples t-test, time with novel and familiar obj, GH group | 9 | 8 rats in each group | t(7) = 2.56 | 0.019 (1-tailed) |
| | Paired samples t-test, time with novel and familiar obj, aGH group | 9 | 8 rats in each group | t(7) = 1.23 | 0.139 (1-tailed) |
| | Paired samples t-test, time with novel and familiar obj, control group | 9 | 13 rats in each group | t(22) = 0.01 | 0.996 (1-tailed) |
| | One-way ANOVA of discrimination ratio | 9 | 8, 8, 13 rats in each group | F(2,26) = 3.36 | 0.050 (1-tailed) |
| | Post-hoc orthogonal comparison of GH, aGH vs control group | 9 | 8, 8, 13 rats in each group | t(26) = 0.32 | 0.787 (1-tailed) |
| | Post-hoc orthogonal comparison of GH, GH vs the other two groups | 9 | 8, 8, 13 rats in each group | t(26) = 2.59 | 0.016 (1-tailed) |
| 5C | Condition circular arena, 3 hours delay | 10 | 8, 13, 8 rats in each group | F(2,26) = 3.70 | 0.05 (1-tailed) |
| | Paired samples t-test, time with novel and familiar obj, GH group | 10 | 8 rats in each group | t(7) = 1.27 | 0.123 (1-tailed) |
| | Paired samples t-test, time with novel and familiar obj, aGH group | 10 | 8 rats in each group | t(7) = 0.30 | 0.378 (1-tailed) |
| | Paired samples t-test, time with novel and familiar obj, control group | 10 | 13 rats in each group | t(22) = 0.04 | 0.482 (1-tailed) |
| | One-way ANOVA of discrimination ratio | 10 | 8, 8, 13 rats in each group | F(2,26) = 0.70 | 0.507 (1-tailed) |
### Condition circular arena, 24 hours delay

| Test Type | Description | Group | Sample Size | Degrees of Freedom | p-value | Note |
|-----------|-------------|-------|-------------|--------------------|---------|------|
| Paired samples t-test, time with novel and familiar obj, QH group | 8 rats in each group | t(7) = 1.69 | 0.068 (1-tailed) |
| Paired samples t-test, time with novel and familiar obj, aQH group | 8 rats in each group | t(7) = 0.20 | 0.433 (1-tailed) |
| Paired samples t-test, time with novel and familiar obj, control group | 6 rats in each group | t(5) = 0.16 | 0.419 (1-tailed) |
| One-way ANOVA of discrimination ratio (DR) | 8, 8, 6 rats in each group | F(2,19) = 0.43 | 0.659 |

### One-way ANOVA of exploration time in all four corners sample phase before 3 h delay

| Test Type | Description | Group | Sample Size | Degrees of Freedom | p-value | Note |
|-----------|-------------|-------|-------------|--------------------|---------|------|
| One-way ANOVA | Exploration time in all four corners sample phase before 3 h delay | 16, 16, 13, 13 object corners | F(3,54) = 0.64 | 0.592 |

### One-way ANOVA of exploration time in all four corners sample phase before 24 h delay

| Test Type | Description | Group | Sample Size | Degrees of Freedom | p-value | Note |
|-----------|-------------|-------|-------------|--------------------|---------|------|
| Two-way ANOVA of exploration time, Effect of Obj location, before 3 h delay | 8, 8, 13 rats in each group | F(1,26) = 0.04 | 0.812 |
| Two-way ANOVA of exploration time, Group X Obj location interaction, before 3 h delay | 8, 8, 13 rats in each group | F(2,26) = 0.68 | 0.516 |

### Two-way ANOVA of exploration time, Effect of Obj location, before 24 h delay

| Test Type | Description | Group | Sample Size | Degrees of Freedom | p-value | Note |
|-----------|-------------|-------|-------------|--------------------|---------|------|
| Two-way ANOVA of exploration time, Group X Obj location interaction, before 24 h delay | 8, 8, 13 rats in each group | F(2,26) = 1.84 | 0.178 |

### Two-way ANOVA of exploration time, Group X Obj location interaction, before 3 h delay

| Test Type | Description | Group | Sample Size | Degrees of Freedom | p-value | Note |
|-----------|-------------|-------|-------------|--------------------|---------|------|
| Two-way ANOVA of exploration time, Group X Obj location interaction, before 3 h delay | 8, 8, 13 rats in each group | F(2,52) = 0.52 | 0.552 |
| Two-way ANOVA of exploration time, Group X Obj location interaction, before 24 h delay | 8, 8, 6 rats in each group | F(2,38) = 0.57 | 0.570 |

### Two-way ANOVA of exploration time, Group X Obj location interaction, before 24 h delay

| Test Type | Description | Group | Sample Size | Degrees of Freedom | p-value | Note |
|-----------|-------------|-------|-------------|--------------------|---------|------|
| Suppl 2A  | Repeated measures ANOVA Weight X Group interaction | 7 rats | F(2,34) = 0.67 | 0.519 |
| Suppl 2B  | Two-way ANOVA Swim speed X Group interaction | 7 rats | F(5,120) = 1.07 | 0.387 |
| Suppl 2C  | Two-way ANOVA Path length X Group interaction | 7 rats | F(5,120) = 0.43 | 0.929 |