**Supplementary file 1A: Abbreviations used for receptors, neuropeptides, and biogenic amines.**

|  |  |
| --- | --- |
| **Abbreviation** | **Full name** |
| **Biogenic amine receptors** |
| 5-HT1A | 5-Hydroxytryptamine receptor 1A |
| 5-HT1B | 5-Hydroxytryptamine receptor 1B |
| 5-HT2A | 5-Hydroxytryptamine receptor 2A |
| 5-HT2B | 5-Hydroxytryptamine receptor 2B |
| 5-HT7 | 5-Hydroxytryptamine receptor 7 |
| CG13579 | Orphan |
| Dop1R1 | Dopamine 1-like receptor 1 |
| Dop1R2 | Dopamine 1-like receptor 2 |
| Dop2R | Dopamine 2-like receptor |
| DopEcR | Dopamine Ecdysone receptor |
| Oamb | Octopamine receptor in mushroom bodies |
| Octalpha2R | α2-adrenergic-like octopamine receptor |
| Octbeta1R | Octopamine beta 1 receptor |
| Octbeta2R | Octopamine beta 2 receptor |
| Octbeta3R | Octopamine beta 3 receptor |
| Oct-TyR | Octopamine-Tyramine receptor |
| TyR | Tyramine receptor |
| **Neuropeptide receptors** |
| AstA-R1 | Allatostatin A receptor 1 |
| AstA-R2 | Allatostatin A receptor 2 |
| CCAP-R | Crustacean cardioactive peptide receptor |
| CCHa2-R | CCHamide-2 receptor |
| CG10738 | Orphan |
| CNMaR | CNMamide receptor |
| Dh31-R | Diuretic hormone 31 receptor |
| Dh44-R1 | Diuretic hormone 44 receptor 1 |
| Dh44-R2 | Diuretic hormone 44 receptor 2 |
| FMRFaR | FMRFamide receptor |
| hec | hector |
| InR | Insulin-like receptor |
| Lkr | Leucokinin receptor |
| NPFR | Neuropeptide F receptor |
| Pdfr | Pigment-dispersing factor receptor |
| rk | rickets |
| RYa-R | RYamide receptor |
| SIFaR | SIFamide receptor |
| sNPF-R | short Neuropeptide F receptor |
| SPR | Sex peptide receptor |
| TkR86C | Tackykinin-like receptor at 86C |
| TrissinR | Trissin receptor |
| **Biogenic amines** |
| 5-HT | 5-Hydroxytryptamine (serotonin) |
| DA | Dopamine |
| OA | Octopamine |
| Tyr | Tyramine |
| **Neuropeptides** |
| AstA | Allatostatin-A |
| DH31 | Diuretic hormone 31 |
| LK | Leucokinin |
| MS | Myosuppressin |
| sNPF | short Neuropeptide F |
| TK | Tachykinin |

**Supplementary file 1B: G-protein prediction scores for selected receptors in IPCs.** From http://athina.biol.uoa.gr/bioinformatics/PRED-COUPLE2

|  |  |  |
| --- | --- | --- |
| **Receptor** | **Isoform** | **G-protein prediction scores** |
| AstA-R1 | NP\_524700NP\_726877 | Gi/o - 0.92Gi/o - 0.92 |
| AstA-R2 | NP\_524544NP\_001247352NP\_001263042 | Gi/o - 0.83Gi/o - 0.79Gq/11 - 0.47Gi/o - 0.83 |
| Lkr | NP\_647968 | Gq/11 - 0.97 |
| MsR1 | NP\_647713NP\_001261324 | Gi/o - 0.99Gs - 0.32Gi/o - 0.96 |
| MsR2 | NP\_647711NP\_728735NP\_001261323 | Gi/o - 0.97Gq/11 - 0.48Gi/o - 0.97Gq/11 - 0.48Gi/o - 0.99 |
| TkR86C | NP\_524304NP\_001097741 | Gq/11 - 0.96Gi/o - 0.55Gq/11 - 0.96Gi/o - 0.62 |
| TkR99D | NP\_524556NP\_001163772NP\_001263092 | Gq/11 - 0.93Gq/11 - 0.81Gq/11 - 0.94 |
| sNPF-R | NP\_524176NP\_001262086 | Gi/o - 0.99Gq/11 - 0.56G12/13 - 0.38Gi/o - 0.99Gq/11 - 0.56G12/13 - 0.38 |
| Dh31-R | NP\_725278NP\_001260950NP\_001260951 | Gs - 0.83Gi/o - 0.83Gs - 0.88Gi/o - 0.66Gq/11 - 0.32Gi/o - 0.94Gs - 0.91 |
| AkhR | NP\_477387NP\_723206NP\_995639NP\_001260149 | Gi/o - 0.99Gi/o - 0.99Gi/o - 0.99Gi/o - 0.99 |
| Dop1R1 | NP\_477007NP\_001163607NP\_001247092NP\_001262563NP\_001303454 | Gq/11 - 0.62Gq/11 - 0.62Gq/11 - 0.62Gq/11 - 0.57Gq/11 - 0.62 |
| Dop1R2 | NP\_733299NP\_524548NP\_001263072 | Gq/11 - 0.99Gq/11 - 0.99Gq/11 - 0.98 |
| Dop2R | NP\_001014759NP\_001014757NP\_001285477NP\_001014758NP\_001014760NP\_001027080 | Gi/o - 0.98Gi/o - 0.54Gq/11 - 0.42Gi/o - 0.83Gi/o - 0.83Gi/o - 0.83Gi/o - 0.72Gq/11 - 0.56 |
| DopEcR | NP\_647897NP\_001014560NP\_001014559 | Gi/o - 0.97Gq/11 - 0.87Gi/o - 0.97Gq/11 - 0.87Gi/o - 0.97Gq/11 - 0.87 |

|  |  |  |
| --- | --- | --- |
| **Receptor** | **Isoform** | **G-protein prediction scores** |
| 5-HT1A | NP\_725849 | Gi/o - 0.99 |
| 5-HT1B | NP\_523789NP\_001163201NP\_001137708 | Gi/o - 0.64Gi/o - 0.64Gi/o - 0.64 |
| 5-HT2A | NP\_524223NP\_730859NP\_001163505NP\_001163506NP\_001097684 | Gs - 0.92Gq/11 - 0.91Gq/11 - 0.91Gs - 0.89Gs - 0.96Gi/o - 0.93Gq/11 - 0.85Gs - 0.83Gq/11 - 0.85Gs - 0.83 |
| 5-HT2B | NP\_001262373NP\_649806NP\_001287238 | Gs - 0.89Gs - 0.89Gs - 0.89 |
| 5-HT7 | NP\_524599NP\_001263131 | Gs - 0.77Gi/o - 0.42Gs - 0.77Gi/o - 0.42 |
| Oamb | NP\_524669NP\_732542NP\_001262774NP\_001303429NP\_001262775NP\_732541 | Gs - 0.40Gq/11 - 0.86Gq/11 - 0.82Gq/11 - 0.86Gs - 0.40Gq/11 - 0.86 |
| Oct-TyrR | NP\_524419NP\_001163494 | Gi/o - 0.96Gi/o - 0.96 |
| Octalpha2R | NP\_650754NP\_001262714NP\_001262715 | Gi/o - 0.99Gi/o - 0.99Gi/o - 0.97 |
| Octbeta1R | NP\_651057NP\_001034064NP\_001262843NP\_001163690 | Gq/11 - 0.56Gq/11 - 0.75Gs - 0.73Gq/11 - 0.56Gs - 0.73Gq/11 - 0.70 |
| Octbeta2R | NP\_001034049NP\_001163596NP\_001247076NP\_001247077NP\_001247078NP\_001303505 | Gs - 0.60Gi/o - 0.45Gi/o - 0.62Gs - 0.35Gs - 0.60Gi/o - 0.45Gs - 0.60Gi/o - 0.45Gs - 0.60Gi/o - 0.45Gs - 0.60Gi/o - 0.45 |
| Octbeta3R | NP\_001034048NP\_650210NP\_001034043NP\_001034046 | Gi/o - 0.83Gi/o - 0.88Gs - 0.65Gq/11 - 0.91Gs - 0.98Gi/o - 0.95G12/13 - 0.32 |