



Corrigendum: Neurogenesis From Embryo to Adult – Lessons From Flies and Mice

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A Corrigendum on

Neurogenesis From Embryo to Adult – Lessons From Flies and Mice

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In the original article, there were six minor mistakes in **Table 1** as published.

The gene group for Eyeless (*ey*) was stated as Paired is homeobox TFs.

The gene group for Gooseberry (*gsb*) was stated as Paired is homeobox TFs.

The gene group for Homothorax (*hth*) was stated as Tale is homeobox TFs.

The gene group for Optix was stated as Six/Sine oculis is homeobox TFs.

The gene group for Retinal Homeobox (*Rx*) was stated as Paired-like is homeobox TFs.

The gene group for Visual system homeobox 1 (*Vsx1*) was stated as Paired-like is homeobox TFs.

The correct gene groups are as follows:

The correct gene group for Eyeless (*ey*) is Paired homeobox TFs.

The correct gene group for Gooseberry (*gsb*) is Paired homeobox TFs.

The correct gene group for Homothorax (*hth*) is Tale homeobox TFs.

The correct gene group for Optix is Six/Sine oculis homeobox TFs.

The correct gene group for Retinal Homeobox (*Rx*) is Paired-like homeobox TFs.

The correct gene group for Visual system homeobox 1 (*Vsx1*) is Paired-like homeobox TFs.

The corrected **Table 1** appears below.

The authors apologize for this error and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

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TABLE 1 | Intrinsic factors and glial-derived extrinsic signals influencing cell decisions in *Drosophila* and mammalian neurogenic niches.

| Names/symbols | Human orthologs | Gene groups and pathways | Description |
|--|-------------------------|---|---|
| In <i>Drosophila</i>: | | | |
| Intrinsic factors | | | |
| Abdominal A (abd-A) | HOXA6 | Bithorax complex | Required for segmental identity of the second through eighth abdominal segments |
| Abdominal B (Abd-B) | HOXC6 | HOX-like homeobox TFs | Specifies the identity of the posterior abdominal segments |
| | HOXA11 | Bithorax complex | |
| | HOXD11 | HOX-like homeobox TFs | |
| Antennapedia (Antp) | HOXB7 | Antennapedia complex HOX-like homeobox TFs | Regulates segmental identity in the mesothorax |
| Asense (ase) | ASCL1 ACSL2 | Basic helix-loop-helix TFs | tTF in d-IPC Type I Nbs |
| Atonal (ato) | ATOH7 | Basic helix-loop-helix TFs | tTF in d-IPC Type I and III Nbs |
| Baboon (babo) | TGFBR1 | TGF- β type I receptors | Required for proliferation of Nbs |
| Broad (br) | BTBD18 | C2H2 zinc finger TFs | tTF in thoracic later-born neurons |
| Castor (cas) | CASZ1 | C2H2 zinc finger TFs | tTF in VNC Type I Nbs, thoracic Type I Nbs, CB Type II Nbs and INPs |
| Chronologically inappropriate morphogenesis (Chinmo) | BTBD18 | C2H2 zinc finger TFs | tTF in thoracic early-born neurons |
| Dachshund (dac) | DACH1 | Other DNA binding domain TFs | tTF in d-IPC Type I Nbs |
| Decapentaplegic (dpp) | BMP2 | Bone morphogenetic proteins signaling pathway core components | Patterns the dorsal surface of the embryo and is expressed in a subset of Rx ⁺ tOPC NECs |
| Deformed (Dfd) | HOXC4 | Antennapedia complex | Involved in proper morphological identity of the maxillary segment and the posterior half of the mandibular segment |
| Dichaete (D) | SOX12 SOX14 SOX21 | HOX-like homeobox TFs | tTF in Me, tOPC and d-IPC Type I Nbs, CB Type II Nbs and INPs |
| | | High mobility group box TFs | |
| | | | |
| Distal-less (Dll) | DLX1 DLX6 | NK-like homeobox TFs | Expressed in Wg ⁺ tOPC NECs and tTF in tOPC Type 0 Nbs |
| | | | |
| Dorsal (dl) | RELA RELB | Nuclear factor- κ B | Patterns the ventral side of the embryo |
| | | | |
| Drop (Dr) | MSX2 | NK-like homeobox TFs | Specifies the dorsal portion of the neuroectoderm |
| Engrailed (en) | EN1 | NK-like homeobox TFs | Segment polarity gene involved in compartment identity and boundary formation |
| Epidermal growth factor receptor (EGFR) | EGFR | Receptor tyrosine kinases | Required for expansion of OPC NECs and patterns the ventral side of the embryo |
| Eyeless (ey) | PAX6 | Paired homeobox TFs | tTF in Me and tOPC Type I Nbs, CB Type II Nbs and INPs |
| Grainy head (grh) | GRHL1 | Polycomb group recruiters/DNA-binding proteins | tTF in CB Type II Nbs and INPs |
| Gooseberry (gsb) | PAX3 | Paired homeobox TFs | Expressed in segmentally repeating pattern to define the A/P polarity of embryonic segments |
| Hedgehog (hh) | SHH DHH | Hedgehog signaling pathway core component | Marks ventral half of the OPC NECs |
| | | | |
| Homothorax (hth) | MEIS1 MEIS2 | Tale homeobox TFs | tTF in Me Type I Nbs |
| | | | |
| Hunchback (hb) | IKZF5 | C2H2 zinc finger TFs | tTF in VNC Type I Nbs |
| IGF-II mRNA-binding protein (Imp) | IGF2BP1 | mRNA-binding protein | tTF in thoracic early-born neurons |
| | IGF2BP2 | | |
| | IGF2BP3 | | |
| Intermediate neuroblasts defective (ind) | GSX1 | HOX-like homeobox TFs | Specifies the intermediate portion of the neuroectoderm |

(Continued)

TABLE 1 | Continued

| Names/symbols | Human orthologs | Gene groups and pathways | Description |
|---|----------------------|---|---|
| Klumpfuss (Klu) | ZBTB7A | C2H2 zinc finger TFs | tTF in Me Type I Nbs |
| Kruppel (Kr) | BCL6 | C2H2 zinc finger TFs | tTF in VNC Type I Nbs |
| Labial (lab) | HOXA1 | Antennapedia complex | Specifies derivatives of gnathocephalic segments |
| | HOXB1 | HOX-like homeobox TFs | |
| Optix | SIX3 | Six/Sine oculis homeobox TFs | Marks the adjacent ventral and dorsal main regions to Vsx1 ⁺ OPC NECs |
| | SIX6 | | |
| Retinal Homeobox (Rx) | RAX | Paired-like homeobox TFs | Marks the tOPC NECs |
| POU domain protein 2 (Pdm2) | POU2F3 | POU homeobox TFs | tTF in VNC Type I Nbs |
| Proboscipedia (pb) | HOXA2 | Antennapedia complex | Required for the formation of labial and maxillary palps |
| | HOXB2 | HOX-like homeobox TFs | |
| Seven up (svp) | NR2F2 | Nuclear receptor TFs | tTF in CB Type II Nbs and INPs |
| Sex combs reduced (Scr) | HOXA5 | Antennapedia complex HOX-like homeobox TFs | Required for labial and first thoracic segment development |
| Sloppy paired 1 (slp 1) | FOXP1 | Fork head box TFs | tTF in Me and tOPC Type I Nbs |
| Syncrip (Syp) | HNRNPR SYNCRIP | mRNA-binding protein | tTF in thoracic later-born neurons |
| Tailless (tll) | NR2E1 | Nuclear receptor TFs | tTF in Me Type I Nbs |
| Ultrathorax (Ubx) | HOXB6 | Bithorax complex HOX-like homeobox TFs | Controls development of the posterior thoracic and first abdominal segments |
| Ventral nervous system defective (vnd) | NKX2-2 | NK-like homeobox TFs | Specifies the ventral portion of the neuroectoderm |
| Visual system homeobox 1 (Vsx1) | VSX2 | Paired-like homeobox TFs | Expressed in central OPC NECs |
| Wingless (wg) | WNT1 | Wnt-TCF signaling pathway core component | Segment polarity gene involved in controlling the segmentation pattern of embryos by affecting the posterior cells of each parasegment and is expressed in a second subset of Rx ⁺ tOPC NECs |
| <i>Niche/glia-derived factors</i> | INHBA | TGFβ superfamily ligand | Secreted from surface glia |
| Activin-β (Actβ) | INHBB | | |
| Anachronism (ana) | – | Glycoprotein | Secreted from cortex glia |
| Dally-like (dlp) | GPC4 | Heparan sulfate proteoglycan Glypican (Membrane tethered) | Secreted from surface glia |
| Drosophila insulin-like peptides 1–8s (dILP1–8s) | IGF1/2 | Insulin-like peptides | Secreted from cortex and surface glia |
| Glass bottom boat (gbb) | BMP7 | Bone morphogenetic proteins signaling pathway ligand | Secreted from surface glia |
| Jelly belly (jeb) | – | Ligand of anaplastic lymphoma kinase | Secreted from glia |
| Spitz (Spi) | TGF-α | EGFR signaling pathway ligand | Secreted from cortex glia |
| Terribly reduced optic lobes (trol) | HSPG2 | Heparan sulfate proteoglycan Perlecan (ECM component) | Secreted from surface glia |
| Symbols/names | Drosophila orthologs | Gene groups and pathways | Description |
| In mammals: | | | |
| Intrinsic factors | | | |
| Castor zinc finger 1 (CasZ1) | Cas | C2H2 zinc finger TFs | tTF in the specification of late-born cell types in the retina |
| COUP-TF interacting protein 2/B cell leukemia/lymphoma 11B (Citp2/BCL11B) | CG9650 | C2H2 zinc finger TFs | Specification of Layer V neurons |
| Distal-less homeobox 2 (Dlx2) | Dll | NK-like homeobox TFs | Regional specification (embryonic subpallium (LGE and MGE) and lateral postnatal/adult SEZ) |
| Empty spiracles homeobox 1 (Emx1) | ems | NK-like homeobox TFs | Regional specification (embryonic pallium and dorsal postnatal/adult SEZ) |

(Continued)

TABLE 1 | Continued

| Symbols/names | <i>Drosophila</i> orthologs | Gene groups and pathways | Description |
|--|-----------------------------|---|---|
| Empty Spiracles Homeobox 2 (Emx2) | ems | NK-like homeobox TFs | Dentate gyrus regional identity |
| Eomesodermin (Tbr2) | Doc1 | T-Box TFs | Specification of INPs |
| Eukaryotic translation initiation factor 4E nuclear import factor 1 (4E-T/EIF4ENIF1) | 4E-T | eIF4E/mRNA translation regulator | Translational repression of neuronal specification TFs |
| Fez family zinc finger 2 (Fezf2) | erm | C2H2 zinc finger TFs | Specification of Layer V neurons |
| Forkhead box G1 (Foxg1) | Slp2 | Fork head box TFs | Specification of deep-layer neurons |
| GS homeobox 2 (Gsh2/Gsx2) | ind | HOX-like homeobox TFs | Regional specification (embryonic subpallium (LGE and MGE) and dorsolateral postnatal/adult SEZ) |
| HOP homeobox (Hopx) | – | Homeobox TFs | Dentate gyrus regional identity |
| IKAROS family zinc finger 1 (Ikzf1) | Hb | C2H2 Zinc finger TFs | tTF in the specification of early-born cell types in the cortex and retina |
| Lysine (K)-specific methyltransferase 2A (Mll1/ KMT2B) | trx | Trithorax complex | Preservation of regional identity |
| Lymphoid enhancer binding factor 1 (Lef1) | pan | High mobility group box TFs | Dentate gyrus regional identity |
| Neurogenic differentiation 1 (Neurod1) | amos ato | Proneural basic helix-loop-helix TFs | Required for neuronal differentiation |
| Neurogenin 2 (Neurog2) | tap | Proneural basic helix-loop-helix TFs | Drives differentiation of NSCs into neurons |
| NK2 homeobox 1 (Nkx2-1) | scro | NK-like homeobox TFs | Regional specification (embryonic subpallium (MGE), and ventrolateral and medial postnatal/adult SEZ) |
| Nuclear receptor subfamily 2, group F, member 1 (Nr2f1/COUP-TF1) | svp | Nuclear receptor TFs | Specification of upper-layer neurons |
| Paired box 6 (Pax6) | ey | Paired homeobox TFs | Expressed in Radial glia/NSCs; regional specification (embryonic pallium, dorsal postnatal/adult SEZ) |
| POU domain, class 3, transcription factor 3 (Brn1/POU3F3) | vgl | POU homeobox TFs | Specification of upper-layer neurons |
| Pumilio RNA-binding family member 2 (Pum2) | pum | RNA-binding family | Translational repression of neuronal specification TFs |
| Special AT-rich sequence binding protein 2 (Satb2) | dve | CUT homeobox TFs | Specification of upper-layer neurons |
| SRY (sex determining region Y)-box 5 (Sox5) | Sox102F | High mobility group box TFs | Specification of layer VI neurons |
| T-box brain transcription factor 1 (Tbr1) | Doc1 | T-Box TFs | Specification of layer VI neurons |
| Transducin-like enhancer of split 4 (Tle4) | gro | Transcriptional corepressor | Specification of deep-layer neurons |
| Zinc finger E-box binding homeobox 2 (Sip1/Zeb2) | zfh1 | C2H2 zinc finger TFs | Feedback signaling from neurons to progenitors |
| Zinc finger protein of the cerebellum 1 (Zic1) | opa | C2H2 zinc finger TFs | Regional specification (embryonic medial subpallium and septal postnatal/adult SEZ) |
| <i>Niche/Astroglia-derived factors</i> | | | |
| Insulin-like growth factor binding protein 6 (IGFBP6) | – | Regulation of insulin-like growth factor receptor signaling pathway | Secreted by non-neurogenic astroglia |
| Insulin-like growth factor 1 (Igf1) | dilp2 | Insulin-like growth factor ligand | Systemic/niche factor |
| Interleukin 1 beta (IL-1 β) | – | Cytokine activity | Secreted by SGZ niche astroglia |
| interleukin 6 (IL-6) | – | Cytokine activity | Secreted by SGZ niche astroglia |
| Jagged 1 (Jag1) | Ser | Notch signaling pathway membrane-bound ligand | Expressed by forebrain astroglia |
| Neurogenesis-1/Chordin-like protein 1 (Ng1/Chrdl1) | – | BMP antagonist | Secreted by SGZ niche astroglia |
| Secreted frizzled-related protein 4 (sFRP4) | – | Wnt antagonist | Secreted by OB astroglia |
| Thrombospondin 1 (Thbs1) | Tsp | Glycoprotein (ECM component) | Secreted by forebrain astroglia |
| Wingless-type MMTV integration site family (Wnt3,Wnt7a) | wg | Wnt pathway ligand | Secreted by SGZ/SEZ niche astroglia |

CB, central brain; d-IPC, distal inner proliferation center; ECM, extracellular matrix; LGE, lateral ganglionic eminence; Me, medulla; MGE, medial ganglionic eminence; Nbs, neuroblasts; NECs, neuroepithelial cells; NSCs, neural stem cells; OB, olfactory bulb; SEZ, subependymal zone; SGZ, subgranular zone; TFs, transcription factors; tTF, temporal transcription factor; t-OPC, tip of the outer proliferation center; VNC, ventral nerve cord.