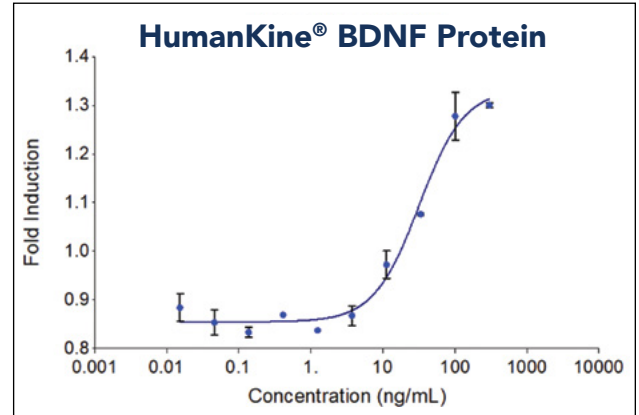
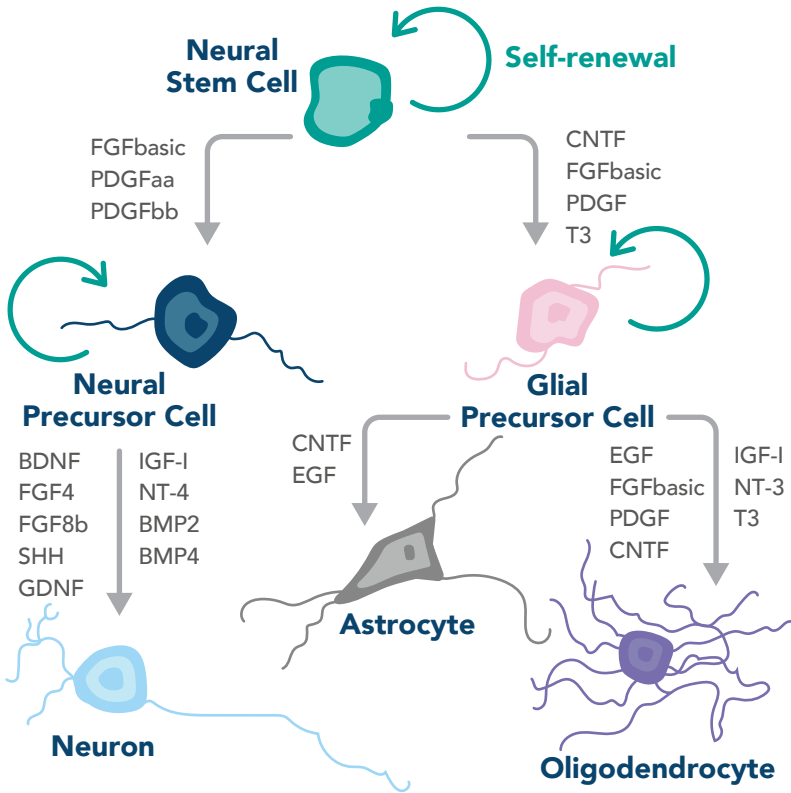
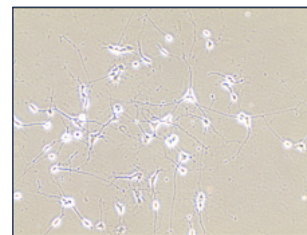


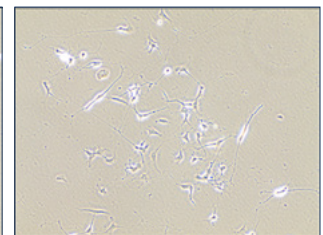
Neural Stem Cell Differentiation



▲ BDNF (HZ-1335) stimulates dose-dependent proliferation of the SH-SY5Y Neuroblastoma cell line



▲ Neuronal differentiation using HumanKine BDNF derived from HEK293



▲ Neuronal differentiation using Competitor BDNF derived from E.coli

Differentiate with confidence using HumanKine® growth factors

| Target | Catalog No. | Purity | Activity (EC50) | Source | GMP-grade? | Cell Type |
|----------|-------------|--------|-----------------|---------|------------|--|
| BDNF | HZ-1335 | >95% | 4-40ng/mL | HEK293 | ✓ | Neuronal cells |
| BMP2 | HZ-1128 | >95% | 7.5-37.5 ng/mL | HEK293 | ✓ | Glutamatergic neurons |
| BMP4 | HZ-1045 | >95% | 1.5-9 ng/mL | HEK293 | ✓ | Glutamatergic neurons |
| EGF | HZ-1326 | >95% | Active | HEK293 | | Progenitor cells, Type 1 astrocytes |
| FGFbasic | HZ-1285 | >95% | 0.05-0.4 ng/mL | HEK293 | ✓ | Progenitor cells |
| FGF4 | HZ-1218 | >95% | ≤ 1.25 ng/mL | HEK293 | | Dopaminergic neurons |
| FGF8b | HZ-1103 | >95% | ≤ 10 ng/mL | HEK293 | | Glutamatergic and dopaminergic neurons |
| GDNF | HZ-1311 | >95% | ≤ 10 ng/mL | HEK293 | | GABAergic and motor neurons |
| IGFI | HZ-1322 | >95% | 14-70 ng/mL | HEK 293 | ✓ | GABAergic and motor neurons, oligodendrocytes |
| PDGFaa | HZ-1215 | >95% | ≤ 10 ng/mL | HEK293 | | Progenitor cells |
| PDGFbb | HZ-1308 | >95% | 0.3-3 ng/mL | HEK293 | | Progenitor cells |
| SHH | HZ-1306 | >90% | ≤ 350 ng/mL | HEK293 | | Progenitor cells, dopaminergic and GABAergic neurons |

Highly validated antibodies to characterize neural cells

NSC and Progenitor Markers

| Target | Catalog No. | Reactivity | Host | Applications | Cell Type |
|--------------|-------------|--|--------|------------------------------------|---|
| ABCG2 | 27286-1-AP | Human, Mouse, Rat | Rabbit | WB, IHC, ELISA | NSCs |
| BMI1 | 10832-1-AP | Human, Mouse | Rabbit | WB, IP, IHC, IF, CoIP, ChIP, ELISA | NSCs |
| CD133 | 18470-1-AP | Human, Mouse, Rat | Rabbit | WB, IHC, IF, FC, ELISA | NSCs |
| CXCR4 | 60042-1-Ig | Human, Mouse | Mouse | WB, IHC, IF, FC, CoIP, ELISA | NSCs |
| EOMES/TBR2 | 28316-1-AP | Human, Mouse, Rat | Rabbit | WB, ELISA | Intermediate progenitors |
| FABP7 | 51010-1-AP | Human, Mouse | Rabbit | WB, IHC, IF, ELISA | NSCs, radial glial cells |
| FRZB | 67081-1-Ig | Human, Mouse | Mouse | WB, ELISA | NSCs |
| GFAP | 16825-1-AP | Human, Mouse, Rat, Goat, Hamster, Pig, Zebrafish | Rabbit | WB, IHC, IF, ELISA | Radial glial cells, glial progenitors |
| GLUT1 | 21829-1-AP | Human, Mouse, Rat, Pig | Rabbit | WB, IHC, IF, FC, ELISA | NSCs |
| GNL3 | 15060-1-AP | Human | Rabbit | WB, IP, IHC, IF, ELISA | NSCs |
| ISL1 | 15661-1-AP | Human | Rabbit | WB, IP, IHC, IF, FC, ELISA | Motor neuron progenitors |
| ISL2 | 18659-1-AP | Human, Mouse, Rat | Rabbit | WB, ELISA | Motor neuron progenitors |
| MSI2 | 10770-1-AP | Human, Mouse, Rat | Rabbit | WB, IP, IHC, IF, ELISA | NSCs |
| Nestin | 19483-1-AP | Human, Mouse, Rat | Rabbit | WB, IHC, IF, ELISA | NSCs, radial glial cells, glial progenitors |
| NEUROD1 | 12081-1-AP | Human, Mouse, Rat | Rabbit | WB, IP, IHC, IF | NSCs |
| NOTCH1 | 20687-1-AP | Human, Mink, Mouse, Pig, Rat, Zebrafish | Rabbit | WB, IHC, IF, FC, CoIP, ELISA | NSCs |
| NOTCH2 | 28580-1-AP | Human | Rabbit | WB, ELISA | NSCs |
| OLIG2 | 13999-1-AP | Human, Mouse, Rat | Rabbit | WB, IP, IHC, IF, ELISA | Motor neuron and oligodendrocyte precursors |
| PAX6 | 12323-1-AP | Human, Mouse, Rat | Rabbit | WB, IHC, IF, FC, ELISA | Apical progenitors, radial glial cells |
| S100 Beta | 15146-1-AP | Human, Mouse, Rat | Rabbit | WB, IHC, IF, ELISA | Radial glial cells |
| SMARCA4/BRG1 | 21634-1-AP | Human, Mouse, Rat, Zebrafish | Rabbit | WB, IP, IHC, IF, CoIP, ChIP, ELISA | NSCs |
| SOX1 | 20744-1-AP | Human | Rabbit | WB, ELISA | NSCs |
| SOX2 | 11064-1-AP | Human, Mouse, Rat, Goat, Zebrafish | Rabbit | WB, IHC, IF, FC, ELISA | NSCs, radial glial cells |
| SOX9 | 67439-1-Ig | Human, Mouse, Canine, Rabbits, Rat | Mouse | WB, IF, FC, ELISA | NSCs |
| Vimentin | 10366-1-AP | Human, Mouse, Rat, Bovine, Deer, Hamster, Pig | Rabbit | WB, IP, IHC, IF, FC, CoIP, ELISA | Radial glial cells |

Neural Markers

| Target | Catalog No. | Reactivity | Host | Applications | Cell Type |
|---------------|-------------|--|--------|----------------------------|---|
| CHAT | 20747-1-AP | Human, Mouse, Rat | Rabbit | WB, IP, IHC, IF, ELISA | Motor neurons |
| DARPP32 | 10748-1-AP | Human, Mouse, Rat | Rabbit | WB, IHC, IF, ELISA | GABAergic neurons |
| GAD65 | 20746-1-AP | Human, Mouse, Rat | Rabbit | WB, IP, IHC, IF, ELISA | GABAergic neurons |
| GAD67 | 67648-1-Ig | Human, Mouse, Rat, Pig, Rabbit | Mouse | WB, IHC, ELISA | GABAergic neurons |
| MAP2 | 67015-1-Ig | Human, Mouse, Rat | Mouse | IHC, IF, FC, ELISA | Glutamatergic neurons |
| NF-L | 12998-1-AP | Human, Mouse, Rat | Rabbit | WB, IP, IHC, IF, FC, ELISA | Dopaminergic, glutamatergic, GABAergic neurons |
| NF-M | 25805-1-AP | Human, Mouse, Rat, Canine | Rabbit | WB, IHC, IF, ELISA | Dopaminergic, glutamatergic, GABAergic neurons |
| Nurr1/NR4A2 | 10975-2-AP | Human, Mouse, Rat | Rabbit | WB, IHC, IF, ChIP, ELISA | Dopaminergic neurons |
| PAX2 | 29307-1-AP | Human, Mouse, Rat | Rabbit | WB, IHC, ELISA | Dopaminergic neurons |
| PAX6 | 67529-1-Ig | Human, Mouse, Rat | Mouse | WB, IHC, IF, ELISA | Dopaminergic neurons |
| PSD-95 | 20665-1-AP | Human, Mouse, Rat, Hamster | Rabbit | WB, IP, IHC, IF, FC, ELISA | Dopaminergic, glutamatergic, GABAergic neurons |
| Synaptophysin | 17785-1-AP | Human, Mouse, Rat, Hamster | Rabbit | WB, IP, IHC, IF, ELISA | Dopaminergic, glutamatergic, GABAergic, motor neurons |
| TH | 25859-1-AP | Human, Mouse, Rat, Canine, Gerbil, Zebrafish | Rabbit | WB, IP, IHC, IF, ELISA | Dopaminergic neurons |
| VAMP2 | 10135-1-AP | Human, Mouse, Rat | Rabbit | WB, IHC, IF, ELISA | Dopaminergic, GABAergic neurons |
| VMAT2 | 20873-1-AP | Human, Mouse, Rat | Rabbit | WB, IF, ELISA | Dopaminergic neurons |

Astrocyte Markers

| Target | Catalog No. | Reactivity | Host | Applications | Cell Type |
|-----------|-------------|--------------------------------------|--------|----------------------------------|--------------------------|
| CD44 | 15675-1-AP | Human, Mouse, Rat, Bovine, Sika deer | Rabbit | WB, IP, IHC, IF, FC, CoIP, ELISA | Types 1 and 2 astrocytes |
| GFAP | 60190-1-Ig | Human, Mouse, Rat, Pig, Rabbit | Mouse | WB, IP, IHC, ELISA | Types 1 and 2 astrocytes |
| GLAST | 20785-1-AP | Human, Mouse, Rat, Cow | Rabbit | WB, IP, IHC, IF | Type 2 astrocytes |
| MSI1 | 27185-1-AP | Human | Rabbit | WB, IHC, ELISA | Type 2 astrocytes |
| S100 Beta | 66616-1-Ig | Human, Mouse, Pig, Rat | Mouse | WB, IHC, IF, ELISA | Types 1 and 2 astrocytes |

Oligodendrocyte Markers

| Target | Catalog No. | Reactivity | Host | Applications | Cell Type |
|--------|-------------|------------------------------|--------|-----------------------------|------------------|
| CSPG4 | 55027-1-AP | Human, Mouse, Rat | Rabbit | WB, IHC, IF, ELISA | Oligodendrocytes |
| GALC | 11991-1-AP | Human, Mouse, Rat, Zebrafish | Rabbit | WB, IP, IHC, IF, ELISA | Oligodendrocytes |
| EZH2 | 21800-1-AP | Human, Mouse, Rat, Pig | Rabbit | WB, IP, IF, FC, ChIP, ELISA | Oligodendrocytes |
| MOG | 12690-1-AP | Human, Mouse, Rat | Rabbit | WB, IHC, IF, ELISA | Oligodendrocytes |
| NKX2-2 | 13013-1-AP | Human, Mouse, Rat | Rabbit | WB, IF, ELISA | Oligodendrocytes |
| SOX2 | 66786-1-Ig | Human, Mouse, Rat, Chicken | Mouse | WB, IHC, IF, FC, ELISA | Oligodendrocytes |