

# Neuroscience

## Introduction

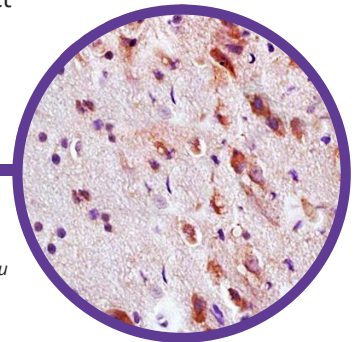
The importance of research in the Neuroscience area cannot be overstated. According to the World Health Organisation's last estimate, more than one billion people are affected with neurological disease globally. Of these, over 50 million suffer with epilepsy and 24 million with Alzheimer's and other dementias. This number is only set to rise with an aging global population.

Research into this key area is therefore essential, so it is also a core focus for Biorbyt to provide quality reagents to meet researcher's needs. Offering high quality antibodies, proteins, ELISA kits and small molecules, we supply products across the board to move your vital research forward.

We cannot hope to list even a fraction of our extensive range here, so please contact us or search [www.biorbyt.com](http://www.biorbyt.com) to find the products you need.

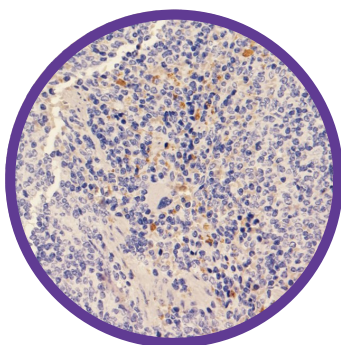
## Neurodegeneration

The progressive structural and functional loss of structures and/or death of neurons. Research is helping decipher the causes of neurodegenerative diseases like ALS (MND), Alzheimer's, Parkinson's and Huntington's at a subcellular level.



*Immunohistochemical analysis of formalin fixed and paraffin embedded rat brain tissue using Tau antibody - orb11453*

orb11453	Tau antibody
orb69429	Apolipoprotein E antibody
orb86005	beta Amyloid (1-28) protein



*IHC-P staining of rat spleen tissue using SOX2 antibody (2.5 ug/ml) - orb33646*

orb33646	SOX2 antibody
orb95443	Calbindin antibody
orb405174	Human WNT3 ELISA Kit

## Neurogenesis

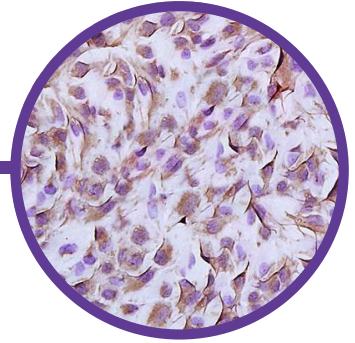
This encompasses the development of neurons from undifferentiated progenitor cells into all mature neurons in the CNS. The process is most prolific during embryonic development, but it is now also known that it occurs in the adult brain. This gives plasticity to the circuitry and increasing evidence shows there is a role for adult neurogenesis in specific brain functions.

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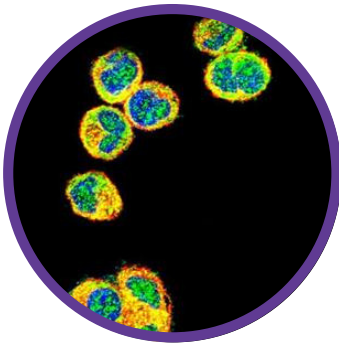
## Neural Stem Cells

Neuroepithelial cells that are the main cell type in the neural plate constitute the major initial class of neural stem cells. They can go through asymmetric and symmetric division and give rise to radial glial cells, which later generate neurons, astrocytes and oligodendrocytes. It is also well established that the adult brain contains a large number of stem cells. Human Embryonic stem cells (hESC) and induced pluripotent stem cells (IPS) have provided a potentially unlimited source of neural stem cells for clinical use.

*IHC-P of mouse mesenchymal stem cells (Vimentin antibody at 1:300) - orb11559*



orb11109	Nestin antibody
orb11559	Vimentin antibody
orb80806	Human FGFR4 protein



*Immunofluorescence analysis of MDA-MB435 cell using AKT1 antibody (primary antibody dilution at: 1:10-50) - orb37491*

## Neuronal Growth and Development

Neurons and their precursors undergo prolific differentiation and migration from their original position in the ventricular zone of the neural tube. They need to migrate outwards to reach their final locations. This is known as radial migration. Radial glial guidance is a key contributory factor in this process.

orb38809	BDNF antibody
orb37491	AKT antibody
orb429500	Human VCAM1 protein

## Neurotransmitter Receptors

Neurotransmitter receptors are integral membrane proteins that bind chemical mediators known as neurotransmitters. Binding of neurotransmitters forms the basis for neuronal communication through synaptic junctions between adjacent neurons. Neurotransmitter receptors are critical targets in clinical intervention and the loss or misregulation of these pathways often underpins the symptoms of neurological disease.

*Immunohistochemical staining of paraffin embedded human heart tissue using S100A1 antibody (primary antibody at 1:200) - orb95982*



orb38809	5HT1A Receptor antibody
orb95982	S100A1 antibody
orb245579	Human GRIN2A protein