

# PIPE Pharmaceuticals

## Technology offers

These technology offers originate from the different partners of the project PIPE. If you are interested in one or more of these offers, please contact the responsible person named below. We are looking forward providing you with more detailed information.

### **Universal Regeneration System (URS) (BioT-0663-UMG)**

The present invention comprises an universal regeneration system (URS) based on adult somatic stem cells, which has been tested *in vivo*. It can be used for therapy and tissue repair, which is based on somatic cells, thus the ethical implications of embryonic stem cells are avoided. Most importantly, these somatic cells, *in vitro* as well as *in vivo*, spontaneously differentiate into tissue-specific cell types without adding specific/artificial differentiation factors. Additionally, the cells, needed for the production of the URS, are easily accessible. They can be transplanted autologously without inducing profound transplant rejections. Thus, the URS is an *in vitro* equivalent of the physiological repair system.

**Status:** US and GB patent were applied for.

### ***In vivo* manipulation of cell cultures via cell-surface- interaction (2006/10)**

A system for influencing cell cultures during growth was developed. It is based on variable nanostructure surfaces generated by functionalized magnetic beads on a biocompatible carrier substrate to induce cell differentiation. To the beads surface, different kinds of proteins and growth factors can be bound covalently, depending on what is required for a certain cell type. Magnetic thin films with particular domain structures are used to align the nanobeads by magnetic interactions. The magnetic substrates as well as the beads are biocompatible and thus, the set up is used as a substrate for cell growth. By using external magnetic fields, the magnetic structure of the thin films can easily be modified *in vivo* and hence, gives the opportunity to influence cell cultures during growth.

**Status:** European and US-patent was applied for.

### **Modulation of neural stem cells by use of EGFL7 or EGFL7 antagonists (U30175)**

EGFL7 (alias zneu1, VE-Statin or notch4 like protein) was known to be a modulator of blood vessel formation. For the first time it was shown that the protein EGFL7 regulates the self renewal of neural stem cells. The signalling pathways of the highly conserved notch receptors regulate different development processes, e.g. neurogenesis. Consistently, experiments using murine neurospheres proved that EGFL7 and EGFL7 antagonists influence the proliferation of these cells and play an important role in self-renewal. Therefore, EGFL7, EGFL7 antagonists, and EGFL7 antibodies can be used to grow specialised cells and tissues from neural stem cells to treat lesions and neurodegenerative diseases of the central nervous system.

**Status:** German patent was applied for.