Stimulating neurogenesis of adult neural stem cells by activating the death receptor CD95 (P-737)

**Keywords**
- activation of the CD95L/CD95 system for inducing neuronal differentiation
- proof of principle verified in vitro and in vivo animal studies
- development of a medicament based on CD95Ligand or antibody
- treatment of Parkinson's disease, Alzheimer's disease, stroke or spinal cord/neuronal injury

**Abstract**
Optimizing the survival and differentiation of neural stem cells is one of the major goals in stem cell biology today. The present invention achieves this goal by the discovery that the ligand for CD95 (APO-1/Fas), namely, CD95L, induces neuronal differentiation in vitro and in vivo and use of CD95L compositions to effect differentiation. The present invention demonstrates that activation of CD95 can promote neurogenesis in neural stem cells (NSCs) in areas of neuronal damage or injury.

**Development Stage**
In vitro experiments were confirmed by preliminary animal studies using an in vivo model of ischemic brain damage.

**The Technology**
Following injury to the CNS, CD95L kills damaged neurons, and simultaneously promotes their replacement by neural progenitor cells and might even support further maturation of these newly generated neurons.

**Applications and Commercial Opportunity**
DKFZ is seeking a partner for development of a medicament based on CD95Ligand, antibody or neural stem cells in order to activate the CD95-Ligand (CD95L)/CD95-Receptor (CD95) system and therefore for the treatment of Parkinson's disease, Alzheimer's disease, stroke or spinal cord/neuronal injury.

**Inventors**
The invention was jointly conceived by Ana Martin Villalba, Nina Corsini, Stefan Klußmann, Susanne Kleber, Elisabeth Letellier of the Division of Molecular Neurobiology of the DKFZ

**Intellectual Property**
An international patent application (PCT/EP/2007/008167) was published as WO2008/034608. This patent family was nationalized in Europe (EP 2064235) and USA (US 12/442,017).

**Further Information**
No other public information is currently available, but further information (speaking with the inventor) is available under a signed Confidential Disclosure Agreement (CDA).

**DKFZ Contact:**
For further information, including a CDA, please contact:

Dr. Frieder Kern  
Deutsches Krebsforschungszentrum  
Technology Transfer Office T010  
Email: F.Kern@dkfz.de  
Tel.: +49-(0)6221-42-2952  
Fax: +49-(0)6221-42-2956
References:
The death receptor CD95 activates adult neural stem cells for working memory formation and brain repair.
Cell Stem Cell. 2009 Aug 7;5(2):178-90