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Meeting abstract

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TGF-β signalling in nervous system development

K Krieglstein

Address: Department of Molecular Embryology, University of Freiburg, Freiburg, Germany

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Transforming growth factor betas (TGF-β) are multifunctional cytokines with widespread distribution. TGF-βs are secreted dimeric proteins that signal via aheteromeric transmembrane serine-threonine tyrosine kinase complex. Phosphorylation of receptor associated Smads leads to the formation of complexes with the common Smad4, which translocates to the nucleus to regulate as a larger transcriptional complex, immediate early gene and target gene expression. However, growing biochemical and developmental evidence supports the notion that alternative or additional, non-Smad pathways also participate in TGF-β signalling. TGF-βs are essential regulators of cellular processes including proliferation, differentiation, migration, cell survival and death during embryonic development, angiogenesis and wound healing. TGF-β actions are quite often described as opposite or distinct effects in context-dependent situations. The explanation for these data may be that TGF-β is cross-talking with numerous other signalling pathways. The presentation intends to describe the complexity of TGF-β signalling on one hand and on the other hand will focus on specific examples of TGF-β signalling during nervous system development.