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The interplay between TGF- β and VEGF signalling in endothelial cell function

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Title: Exploring the interplay between TGF- β and VEGF signalling in endothelial cell function

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Stellingen

1. With misregulation of TGF- β signaling at the heart of cardiovascular disorders, the cognate signaling components represent interesting targets for therapy. (*this thesis*)
2. Understanding the function of soluble endoglin in vascular biology may reveal the etiology of pre-eclampsia and potentially be beneficial in diagnosing patients at risk for development of pre-eclampsia. (*this thesis*)
3. Inhibition of TGF- β /ALK5 signaling enhances VEGF-induced endothelial capillary formation, and endothelial cell sprouting *in vitro* and angiogenesis *in vivo*. (*this thesis*)
4. Endoglin, a co-receptor for TGF- β , is required for efficient VEGF-induced endothelial cell sprouting. (*this thesis*)
5. Understanding the molecular mechanisms by which TGF- β signaling exerts its diverse, context-dependent effects on angiogenesis will enable us to develop new therapeutic interventions to manage pathological vascular malformations, tumor angiogenesis and tumor growth.
(Pardali E et al., Trends Cell Biol. 2010 Sep;20(9):556-67.)
6. Recent insights establish how endothelial cells communicate with each other and with their environment to form a branched vascular network. The emerging principles of vascular growth provide exciting new perspectives, the translation of which might overcome the current limitations of pro- and anti-angiogenic therapy.
(Potente M et al., Cell. 2011 Sep 16;146(6):873-87.)
7. The differential regulation of surface receptor endocytosis might help to assign certain cells to specific functional roles.
(Nakayama M et al., Nat Cell Biol. 2013 Mar;15(3):249-60.)
8. Endoglin regulates TGF- β induced integrin signaling activation by complexing and co-internalizing with $\alpha 5\beta 1$ integrin.
(Tian H et al., EMBO J. 2012 Oct 3;31(19):3885-900.)
9. Creeping into the popular psyche, few scientists and many others in professions such as science and engineering may display some of the characteristics of autism.
(Buchen L Nature 2011 479, 25-27)
10. There is nothing either good or bad, but thinking makes it so.
(Shakespeare)
11. Every cloud has a silver lining.
12. P-value is not a substitution for your brain.