



Review

Pleiotrophin and its receptor protein tyrosine phosphatase beta/zeta as regulators of angiogenesis and cancer



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ABSTRACT

Pleiotrophin (PTN) is a secreted heparin-binding growth factor that through its receptor protein tyrosine phosphatase beta/zeta (RPTPβ/ζ) has a significant regulatory effect on angiogenesis and cancer. PTN and RPTPβ/ζ are over-expressed in several types of human cancers and regulate important cancer cell functions *in vitro* and cancer growth *in vivo*. This review begins with a brief introduction of PTN and the regulation of its expression. PTN receptors are described with special emphasis on RPTPβ/ζ, which also interacts with and/or affects the function of other important targets for cancer therapy, such as vascular endothelial growth factor A, α_vβ₃ and cell surface nucleolin. PTN biological activities related to angiogenesis and cancer are extensively discussed. Finally, up to date approaches of targeting PTN or RPTPβ/ζ for cancer treatment are presented. Insights into the regulatory role of PTN/RPTPβ/ζ in angiogenesis and cancer are discussed. The review highlights the potential of alternative anti-

Testimonials

“The review is good and comprehensive The authors are among the world's foremost experts in this field and content of the review is almost encyclopedic. ... I believe it has the potential of becoming one of the standard references for information on PTN”.



Reviewer #1

“This is an extensive and well-written report by an expert in the field highlighting the role of PTN and its receptor RPTPβ/ζ in angiogenesis and cancer..... The report is timely and updated and will certainly be useful for everyone working in the field of tumor angiogenesis”.



Reviewer #2