

VASOINHIBINS ARE NATURAL INHIBITORS OF ANGIOGENESIS IN THE VITREOUS AND ARE IMPAIRED IN PATIENTS WITH DIABETIC RETINOPATHY

Jakob Triebel^{1,3*}, Aura Ileana Moreno-Vega¹, Miguel Vazquez-Membrillo¹, Renata García-Franco², Yazmín Macotela¹, Ellery López-Star², Gonzalo Martínez de la Escalera¹ and Carmen Clapp¹

¹ Instituto de Neurobiología, Universidad Nacional Autónoma de México (UNAM), Campus UNAM-Juriquilla, Querétaro, México

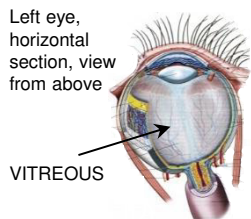
² Instituto Mexicano Oftalmología, Querétaro, México

³ Institute for Clinical Chemistry, Laboratory Medicine and Transfusion Medicine, Nuremberg Hospital, Nuremberg, Germany

* Correspondence: Jakob.Triebel@gmx.de



Klinikum Nürnberg



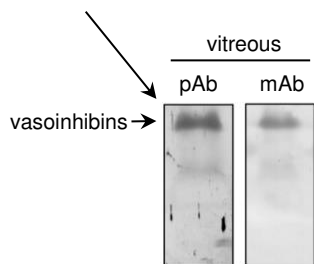
BACKGROUND

The vitreous is free of blood vessels and antiangiogenic. It maintains a transparent state throughout life. In diabetic retinopathy, retinal blood vessels invade the vitreous and cause vitreous hemorrhage and retinal detachment, resulting in vision loss or blindness.

Here, we investigate whether vasoINHIBINS, antiangiogenic peptides derived from the pituitary hormone prolactin, contribute to the antiangiogenic characteristics of the vitreous and whether their generation is impaired in the vitreous of patients with diabetic retinopathy.

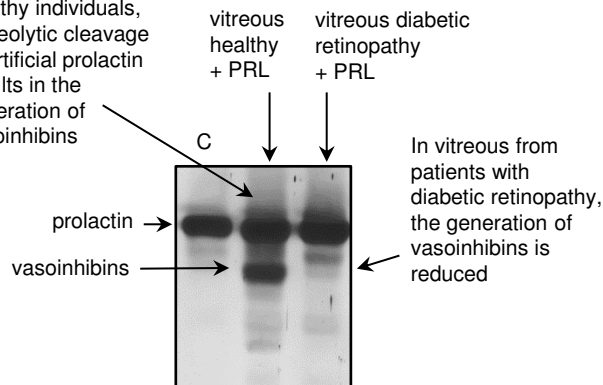
RESEARCH RESULTS

Endogenous vasoINHIBINS are present in the human vitreous



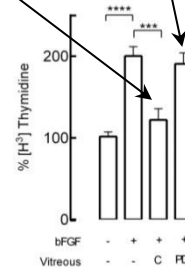
Western Blot, human vitreous fluid, detection of endogenous vasoINHIBINS

In vitreous from healthy individuals, proteolytic cleavage of artificial prolactin results in the generation of vasoINHIBINS



Western Blot, human vitreous fluid incubated with artificial prolactin, detection of prolactin and vasoINHIBINS

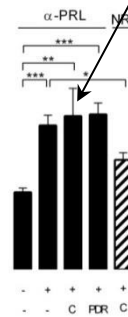
Vitreous from healthy individuals inhibits endothelial cell proliferation



Endothelial cell proliferation assay

Vitreous from patients with diabetic retinopathy does not inhibit endothelial cell proliferation

After immunodepletion of vasoINHIBINS, vitreous from healthy individuals does not inhibit endothelial cell proliferation



CONCLUSION

Prolactin-derived vasoINHIBINS are natural inhibitors of angiogenesis in the human vitreous and their generation is impaired in patients with diabetic retinopathy.