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## An overview of RGD-containing peptides research and it's potential in the field of glaucoma therapy and/or vitreolysis

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laucoma is characterized by cupping of the optic nerve head and irreversible loss of retinal ganglion cells. Elevated  ${f J}$  intraocular pressure due to reduction in aqueous outflow facility is a major causal risk factor in glaucoma. The extracellular matrix (ECM) proteins form a matrix assembly outside the cells which are important for proper maintenance of resistance in the aqueous outflow pathway. Evidence is increasing that correlates increased outflow resistance with an excessive accumulation of extracellular matrix proteins, ECM/ECM-remodeling, However, the relationship of these events to the interaction of outflow pathway cells with their ECM is not fully understood. The most studied factors associated with glaucoma such as corticosteroids and TGF-beta, are also known for increased expression of integrins and ECM proteins in the trabecular meshwork, whereas integrins are a major determinant of ECM deposition in other cellular systems.

## Biography

Since it is well understood in other cellular systems that arginylglycylaspartic acid (RGD-peptide) competes with integrin-ECM interactions and inhibits ECM protein cross-linking, the RGD- containing peptides were perfused in the eyes ex-vivo. Several laboratories have shown inconsistent effects of RGD peptide perfusion on outflow facility either as increased outflow or as having no effects that could be species specific. Clearly, our findings and others support the hypothesis that outflow facility increased by perfusion of RGD-containing peptides in porcine eyes. Our research also suggests the significance, of RGD-containing peptides as potential therapy for glaucoma and/or induction to vitreolysis. Janardan Kumar holds a Ph.D. degree in chemistry under kind supervision of C. M. Gupta, ex-director, CDRI, Lucknow, India. In the United States, first he received postdoctoral training on motor proteins in the laboratory of Michael P. Sheetz, a lasker award winner, at Duke University Medical Center, North Carolina. He published his work on kinectin, a myocilin like protein, in Science (1995), and an abnormality in myocilin has been predicted to be involved in the pathogenesis of glaucoma. Prior to coming to Becker College, while a research assistant professor at Tuffs University, Kumar engineered a new real time perfusion system used for the discovery of drugs to treat glaucoma. Presently, Kumar is chair of the natural sciences department, and is actively engaged in the advancement of course curriculum in microbiology, chemistry, and developing the biotechnology/biology major at Becker College.

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