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## PARASITOLOGY &amp; PATHOGENESIS

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**Therapeutic and Immunomodulatory Potential of *Brugia malayi* Cystatin in Inflammatory and Autoimmune Disorders**Vishal Khatri<sup>1</sup>, Nitin Amdare<sup>2</sup>, MVR Reddy<sup>3</sup> and Ramaswamy Kalyanasundaram<sup>1</sup><sup>1</sup>University of Illinois, USA<sup>2</sup>Albert Einstein College of Medicine, New York, USA<sup>3</sup>Mahatma Gandhi Institute of Medical Sciences, India

The concept of hygiene hypothesis has directed us to investigate anti-inflammatory and therapeutic potential of *Brugia malayi* recombinant cystatin (rBmCys) in immune-mediated disorders such as, ulcerative colitis (UC) and Type-1 diabetes (T1D) in rodent models. The anti-inflammatory activity of rBmCys on mice peritoneal exudate cells was initially checked *in vitro*. Colitis was induced by administering Dextran Sulfate Sodium (DSS) orally on days 3, 4 and 5. Different groups of colitis-induced mice were treated with rBmCys (10/25/50 µg/dose/i.p.). Treatment with rBmCys reversed the pathology in DSS-induced colitis, these include no weight loss, absence of any occult blood in the feces and absence of pathological changes in the colon. The amelioration of the symptoms and pathology in the DSS-colitis model after rBmCys treatment was dose dependent. For T1D, streptozotocin-induced diabetic mice were used and four doses of rBmCys (25µg/dose/i.p.) were given at 15 days intervals after the onset of the disease. All the treated animals were assessed for changes in the clinical parameters, humoral and cellular immune responses. Treatment with rBmCys ameliorated the overall disease severity of T1D. Fasting blood glucose levels were decreased to 37% following treatment with rBmCys. Histopathological analysis showed that >44% of the total pancreatic islets were protected from inflammatory changes and cell death. This improvement in colitis and T1D correlated with a generalized shift towards Th2 type of immune response in rBmCys treated animals. The findings from this study show that rBmCys is a promising immunomodulatory molecule for reversing the symptoms of colitis and T1D.

**Biography**

Vishal Khatri, completed his PhD and working as a research associate at Department of Biomedical Sciences, College of Medicine Rockford, University of Illinois, Rockford, Department of Microbiology & Immunology under the super vision of Dr. Ramaswamy Kalyanasundaram, Professor & Head of Department.

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