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## TITLE

### Large Scale Purification of Hexastatin using L-arginine Mediated Renaturation and Size Exclusion Chromatography

**Sudhakar Akul Yakkanti**

Boys Town National Research Hospital, USA

The anti-angiogenic carboxy terminal non-collagenous domain (NC1) derived from human Collagen type IV alpha 6 chain, [ $\alpha$ 6(IV)NC1] or hexastatin a 25-kDa protein was identified by as an inhibitor of angiogenesis and was earlier obtained using different recombinant methods of expression in bacterial systems. However, the effect of L-arginine mediated renaturation in enhancing the relative yields of this protein from bacterial inclusion bodies has not been evaluated. In the present study, direct stirring and on-column renaturation methods using L-arginine and different size exclusion chromatography matrices were applied for enhancing the solubility and purity of recombinant hexastatin from bacterial inclusion bodies. This methodology enabled purification of higher quantities of soluble biologically active protein from inclusion bodies, which inhibited endothelial cell proliferation, migration and tube formation. In addition recombinant hexastatin interacting with different cell surface integrins and inhibits pro-inflammatory cyclo-oxygenase-2 (COX-2) expression that leading to decreased tumor angiogenesis and tumor growth. Thus, the scope for L-arginine mediated renaturation in obtaining higher yields of soluble, biologically active hexastatin from bacterial inclusion bodies is evaluated.

#### Biography

Sudhakar Akul Yakkanti is the founder Director of Cell Signaling, Retinal and Tumor Angiogenesis Laboratory at Boys Town National Research Hospital, Associate Professor at Creighton University School of Medicine and University of Nebraska Medical Center, Omaha, NE, USA. He did his postdoctoral training at Harvard Medical School, Boston, MA, USA (2003). He has received Ph.D (2001) degrees in Biochemistry from University of Hyderabad, India. He received President's fellowship (1992), GATE (1996) and CSIR (2007-2000) fellowships from Government of India. He received Mahindra & Mahindra Educational Award (2000) and Young Clinical Scientist Awards from Flight Attendant Medical Research Institute (FAMRI) in 2007 and 2010. He also received Bio-Bio Young Scientist Award from OMICS publishing group; Michael A. O'Connor Young Investigator Award; RO1 grant Award from NIH/NCI and Research Scholar Grant Award from ACS (2010). He is serving as AIBS/NIH-RO1 Grant reviewer for DT study section. He has published about 40 research articles in several top journals including Science, Cancer Cell, JCI, Blood, PNAS, Gastroenterology, Cancer Research, JBC, IOVS, Mol Vision, J Clinical & Experimental ophthalmology, JCST etc. He is serving as an Executive Editor, Editor and Editorial board member of reputed journals and is serving as a reviewer for 20 scientific journals including JCI, Blood, Circulation, Circulation Research, Cancer research, Clinical Cancer research etc. He was honored by giving a position as Keynote Speaker, Chairman, Co-chairman and organizing committee member for several international conferences.