

IMCB Invited Speaker



Speaker : Prof. Vivek Malhotra
ICREA Research Professor and Chair, Cell and Developmental Biology, CRG, Centre for Genomic Regulation, Barcelona, Spain

Date : 28 February 2014, Friday

Time : 11:00AM - 12:00PM

Venue : IMCB Seminar Room 3-46, Level 3, Proteos, Biopolis

Host : Prof. Wanjin Hong

Seminar :

Cargo-specific exit routes from the Endoplasmic Reticulum

Collagens are the most abundant secretory proteins, comprising 25-30% of the human body weight. They are required for cell-cell attachment, tissue organization and for the differentiation of chondrocytes to produce mineralized bones. There are at least 27 different kinds of collagens, composed of homo or hetero trimers of polypeptide chains coiled around each other to form a triple helix configuration. These unbendable triple helices, which can be up to 450 nm long, as in the case of Collagen VII, are too big to fit into the conventional transport carriers of the secretory pathway that have been identified thus far. How are these bulky proteins exported from the ER?

We have shown previously that TANGO1 is required for the export of the bulky collagen VII but not collagen I from the Endoplasmic Reticulum (ER). Our new findings indicate the involvement of Sly1, a member of the Sec1/Munc18 (SM) family of proteins that regulate the activity of SNAREs in membrane fusion events, in the specific export of collagen VII but not procollagen I. Our data indicates that TANGO1 acts earlier in cargo selection whereas Sly1 acts post COPII coat assembly in the series of events regulating the exit of secretory cargo from the ER. All together, we suggest the existence of at least two distinct pathway of secretory cargo export at the ER: a TANGO1-sly1 dependent for the export of collagen VII and another independent of these proteins for collagen I and other secretory cargoes.

About the Speaker :

Vivek Malhotra received B.Sc. in Biochemistry from Stirling University and D.Phil. in biochemistry from Oxford University. He was a postdoc in the laboratory of James Rothman at Stanford University before joining UCSD in 1990. Malhotra is an elected fellow of the American Association for the Advancement of Science and EMBO. In 2008 he moved to chair the Department of Cell and Developmental Biology at CRG in Barcelona, Spain. He was awarded the MERCK award from the American Society of Biochemistry and Molecular Biology (ASBMB) in 2013.

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