Keck School of Medicine of USC

Department of Translational Genomics - Virtual Distinguished Lecture Series

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"Biogenesis of type I collagen in fibrosis: the unique mechanism and opportunities to discover antifibrotic drugs"

Type I collagen is the most abundant protein in human body. The abundance of type I collagen is primarily due to the slow turn-over of protein, rather than to a high biosynthetic rate. Excessive synthesis of type I collagen is seen in fibroproliferative disorders and leads to fibrosis of various organs. Although fibrosis affects millions of people, there is no cure and antifibrotic drugs are urgently needed. The discovery that biosynthesis of type I collagen is regulated differently in fibrosis than in normal tissues opened the possibility to specifically target the profibrotic biosynthesis by drugs. This presentation will emphasize the unique features of type I collagen biogenesis and describe the mechanism responsible for its acceleration in fibrosis. In the core of this mechanism is the interaction of RNA binding protein LARP6 with the unique stem-loop structure present in type I collagen mRNAs. The biochemical characterization of LARP6 binding and the structural organization of type I collagen biogenesis by LARP6, as revealed by direct visualization of this process in cells, will be presented. The discovery of a LARP6 binding inhibitor and its efficacy as antifibrotic compounds in animal models of hepatic fibrosis will also be communicated and the future work on the rational design of additional LARP6 binding inhibitors as specific antifibrotic drugs will be suggested.

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Tuesday, March 2, 2021 11:00am – 12:00pm **Register Here**