Poster Presentation

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CD 151 – A membrane protein via X-ray Crystallography

Gayathri Purushothaman[1], Vijay Thiruvenkatam[1]
[1]*Biological Engineering,Indian Institute Of Technology Gandhinagar, Gandhinagar, India*
E-mail: gayathri.p@iitgn.ac.in

Tetraspanins are family of small membrane proteins and they are involved in multitude of biological process. Structurally they are characterized by having four transmembrane domains, short inner and outer loops, one large extra cellular loop contains CCG motif and N and C terminal. Iconic features of these proteins are formation of Tetraspanin Enriched Micro domains (TEMs) by interacting among themselves and with other transmembrane and cytosolic proteins. These domains provide a signaling platform for many important cellular functions such as immune response induction, fertilization, viral infection, maintenance of skin integrity and malignant process. Tetraspanin CD151 is frequently over expressed on cancer cells and is functionally linked to cancer metastasis. CD151 forms direct and stable and interaction with integrin molecules and regulates the cellular functions. Increasing evidence emerging from in vitro, in vivo and clinical analyses associates that CD151 partnership with integrins α6β1 and α6β4, modulates different stages in cancer such as tumor cell growth, metastasis and drug sensitivity in various types of cancer. The importance of CD151 signposts that targeting CD151 could be a promising therapy in cancer and other viral infections. Even though evidences are there for the CD151-Integrin interactions, the mechanisms and mode of the interactions are not yet known. The structural and functional characteristics of CD151 via the three dimensional structure of the protein would pave way for understanding the TEMs of CD151. By considering the challenges in the structural determination of membrane protein, we expressed and purified the specific portion of CD151 in bacterial system. The expressed portion includes large extra cellular loop alone as well along with the one transmembrane domain and C-Terminal which expected to be have interaction with Integrins and other partner proteins. The expressed recombinant protein confirmed by western blot and MALDI. The activity of the recombinant protein will be assessed by cholesterol binding assays followed the protein will be experiment to crystallization.

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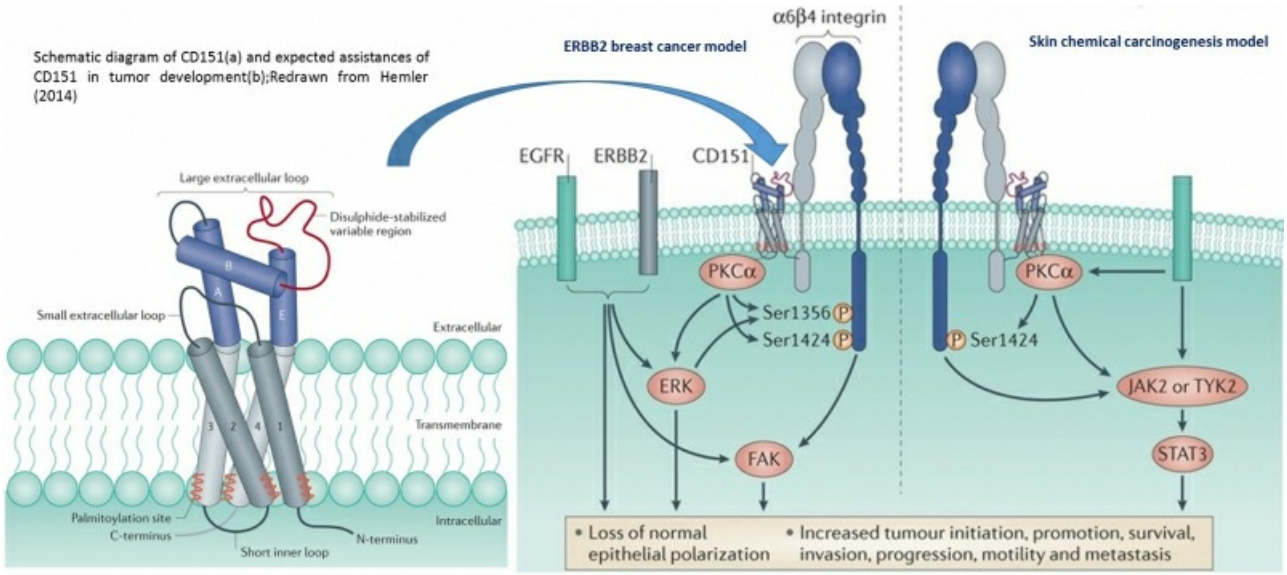

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