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Anticancer agents used in traditional Chinese medicine that target prohibitins and the translation initiation factor eIF4a

Flavaglines are a family of anticancer natural products that relieve the resistance to cancer chemotherapies and display a strong cytotoxicity that is specific to cancer cells in a low nanomolar range. Not only flavaglines are not toxic to non-cancer cells, but they protect normal cells from various stresses. Thus, we demonstrated for the first time that these compounds protect the heart and neurons from the adverse effects of cancer chemotherapies involving anthracyclines and cisplatin. We also identified the scaffold proteins prohibitins-1 and -2 (PHB1/2) as the molecular targets of flavaglines. The binding of flavaglines to PHBs prevents their interaction with C-Raf and, thereby, inhibits C-Raf activation, which is critical to the survival and proliferation of cancer cells. Flavaglines also directly inhibit another emerging target in oncology, the translation initiation factor eIF4a. *In vivo* data indicate that flavaglines could greatly improve the treatment of chemoresistant metastatic melanoma.

Biography

Laurent Désaubry is a CNRS Research Director in the University of Strasbourg in France and Professor at Tianjin University of Science and Technology (TUST) in China. He is currently Editor and Board Member of Frontiers in Chemistry, Medicinal Chemistry and Advances in Oncology Research and Treatments. In 1992, he received a PhD degree in Medicinal Chemistry from Strasbourg University. From 1992 to 1996, he worked as a Post-doctoral fellow at SUNY at Stony Brook, USA. He made another Post-doctoral internship in Prof. Pierre Chambon's laboratory before to get a CNRS Research Senior Scientist at the University of Strasbourg-CNRS. He was promoted to the position of CNRS Research Director (corresponds to Full Professor) in 2014, and became Professor at TUST in 2015.

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