**BIOLOGICAL ACTIVITY:**

Loureirin B, a flavonoid extracted from *Dracaena cochinchinensis*, is an inhibitor of plasminogen activator inhibitor-1 (PAI-1), with an IC50 of 26.10 μM; Loureirin B also inhibits KATP, the phosphorylation of ERK and JNK, and has anti-diabetic activity.

IC50 & Target: IC50: 26.10 μM (PAI-1)\(^4\)

*In Vitro:* Loureirin B enhances the relative mRNA level of Pdx-1 and MafA. Loureirin B (1, 0.1, and 0.01 μM) increases insulin secretion in Ins-1 cells. Loureirin B (0.01 μM) almost causes no toxicity on cells. Loureirin B improves the level of expressions of MafA and Pdx-1 and ATP level. Loureirin B inhibits the KATP current but increases the \([\text{Ca}^{2+}]_{\text{i}}\) level in Ins-1 cells\(^1\). Loureirin B inhibits the expression of Col1 and FN, as well as the TGF-β1-mediated up regulation of p-JNK. Loureirin B also inhibits the up regulation of p-ERK that is induced by TGF-β1. Moreover, Loureirin B inhibits the contraction of TGF-β1-stimulated fibroblasts through the down regulation of p-ERK and p-JNK. However, Loureirin B does not suppress the up regulation of p-p38 that is induced by TGF-β1\(^2\). Loureirin B downregulates both mRNA and protein levels of type I collagen, type III collagen and α-smooth muscle actin in a dose dependent manner in HS fibroblasts. Loureirin B also suppresses fibroblast proliferative activity and redistributes cell cycle, but does not affect cell apoptosis\(^3\).

*In Vivo:* Loureirin B significantly improves the arrangement and deposition of collagen fibres, decreases protein levels of ColI, ColIII and α-SMA and suppresses myofibroblast differentiation and scar proliferative activity, in a rabbit ear scar model. Loureirin B effectively inhibits TGF-β1-induced upregulation of ColI, ColIII and α-SMA levels, myofibroblast differentiation and the activation of Smad2 and Smad3, in NS fibroblasts\(^3\).

**PROTOCOL (Extracted from published papers and Only for reference)**

*Cell Assay:* \(^1\)Ins-1 cells are seeded onto 96-well plates and cultured for 48 h to approximately 80-90% confluence. Then, the cells are starved in a 2% FBS/DMEM for 12 h. Control group is cultured in medium without loureirin B, while the positive control group is received fresh medium with glimepiride. After the treatment of loureirin B and glimepiride for 4 and 8 h, the cell viability is measured by Cell Counting Kit-8 (CCK-8). *Animal Administration:* Loureirin B is formulated in PBS.\(^3\)For short, 10 adult New Zealand white male rabbits (2.0-2.5 kg b.w./each) are acclimated and housed under the standard 12-h light: 12-h dark cycle with free access of water and SPF basal diet. Rabbit is first anaesthetized with 1% pentobarbital (1.5 mg/kg b.w.), and then, a dermal punch biopsy (10×4 mm) is created down to bare cartilage on the ventral surface of each ear to outline a full-thickness wound. Four punch wounds are made on each ear of the eight rabbits. A dissecting microscope is used to ensure the complete removal of epidermis, dermis and perichondrium in each wound. Forty-eight hours after surgery, wounded rabbits are randomly divided into two groups with each being subcutaneously injected with DMSO solution (0.125% in PBS, 0.25 mL/kg b.w.) on the left ear or loureirin B solution (25 μg/mL in PBS, 0.25 mL/kg b.w.) on the right ear once every other day for total six times. Two rabbits are used for pilot experiment, four
rabbits are sacrificed 14 days after injury (n = 4), and the rest four are sacrificed 28 days after injury (n=4). Two of the four scar tissues on the same ear are processed for Western blot, and the other two are used for Masson staining.

References: