

TGF- β Receptors: Gatekeeper of TGF- β Signaling

TGF- β , TGFBR, and TGF- β signaling pathway

TGF- β , namely Transforming Growth Factor Beta, plays a key role in regulating normal development, homeostasis, and cancer progression. The TGF- β family members signal via TGF- β receptors (TGFBR1, 2, and 3). TGFBR1 and 2 form a heterotetrameric complex with the TGF- β ligand, while TGFBR3 facilitates ligand binding to TGFBR2.

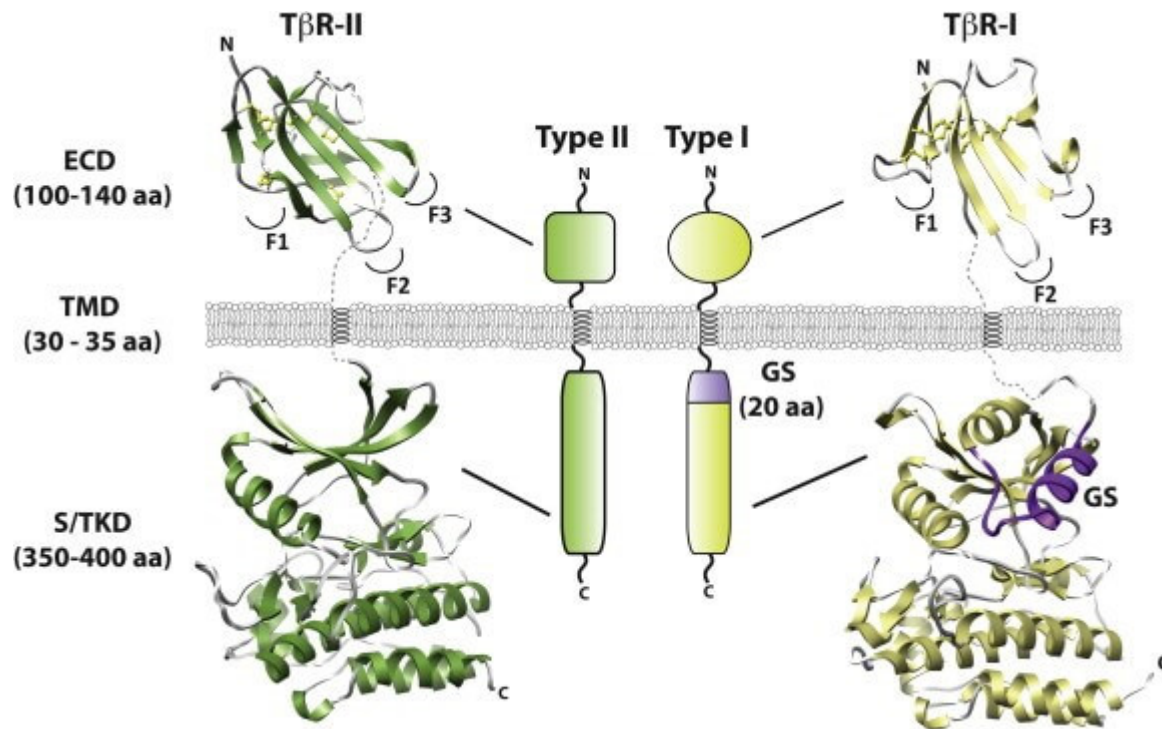


Figure 1: Structure of TGFBR1, 2^[1]

TGF- β signaling is transmitted by the phosphorylation of the R-Smad proteins. The phosphorylated R-Smad proteins assemble into a heteromeric complex with the common-Smad (Smad4) and translocate into the nucleus to regulate gene expression. The heterotetrameric receptor complex can also activate non-Smad proteins, such as TRAF4/6, Rho, and PI3K, to regulate the transcription of target genes^[2-3].

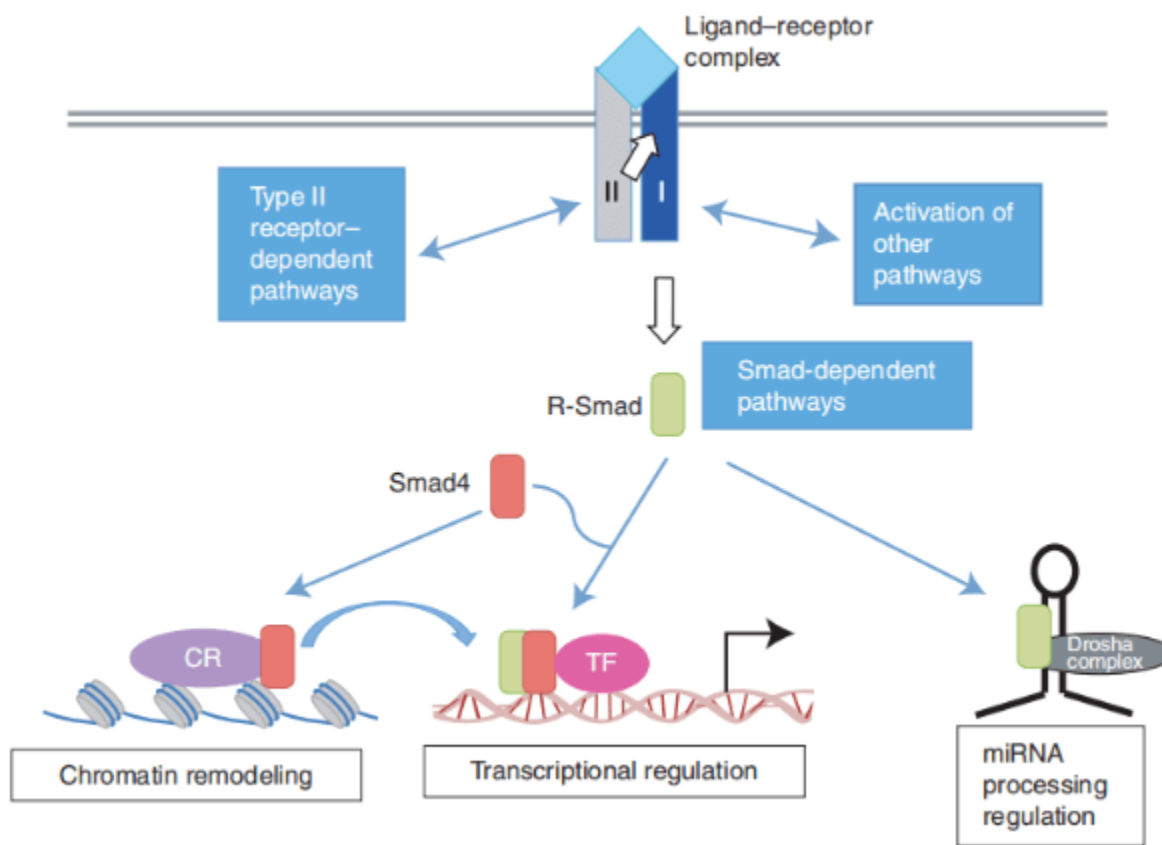


Figure 2: Smad-dependent TGF - β signaling pathway^[3]

TGFBR as a target for cancer treatment

TGF- β functions as a tumor suppressor in pre-malignant cancer progression, but plays a pro-tumorigenic role in late-stage cancer. In cancer cells, TGF- β -induced cell cycle arrest and apoptosis may be eliminated by the inhibition of TGFBRs. TGFBR1 and 2 have been considered promising targets for the inhibition of the TGF- β signaling pathway^[4-5].

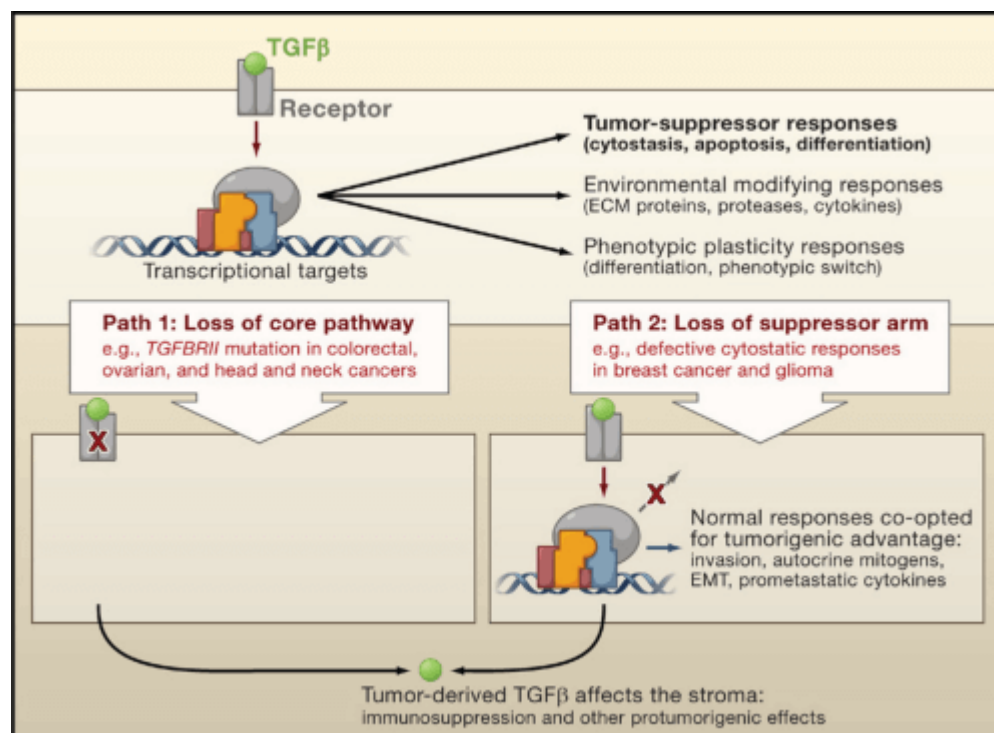
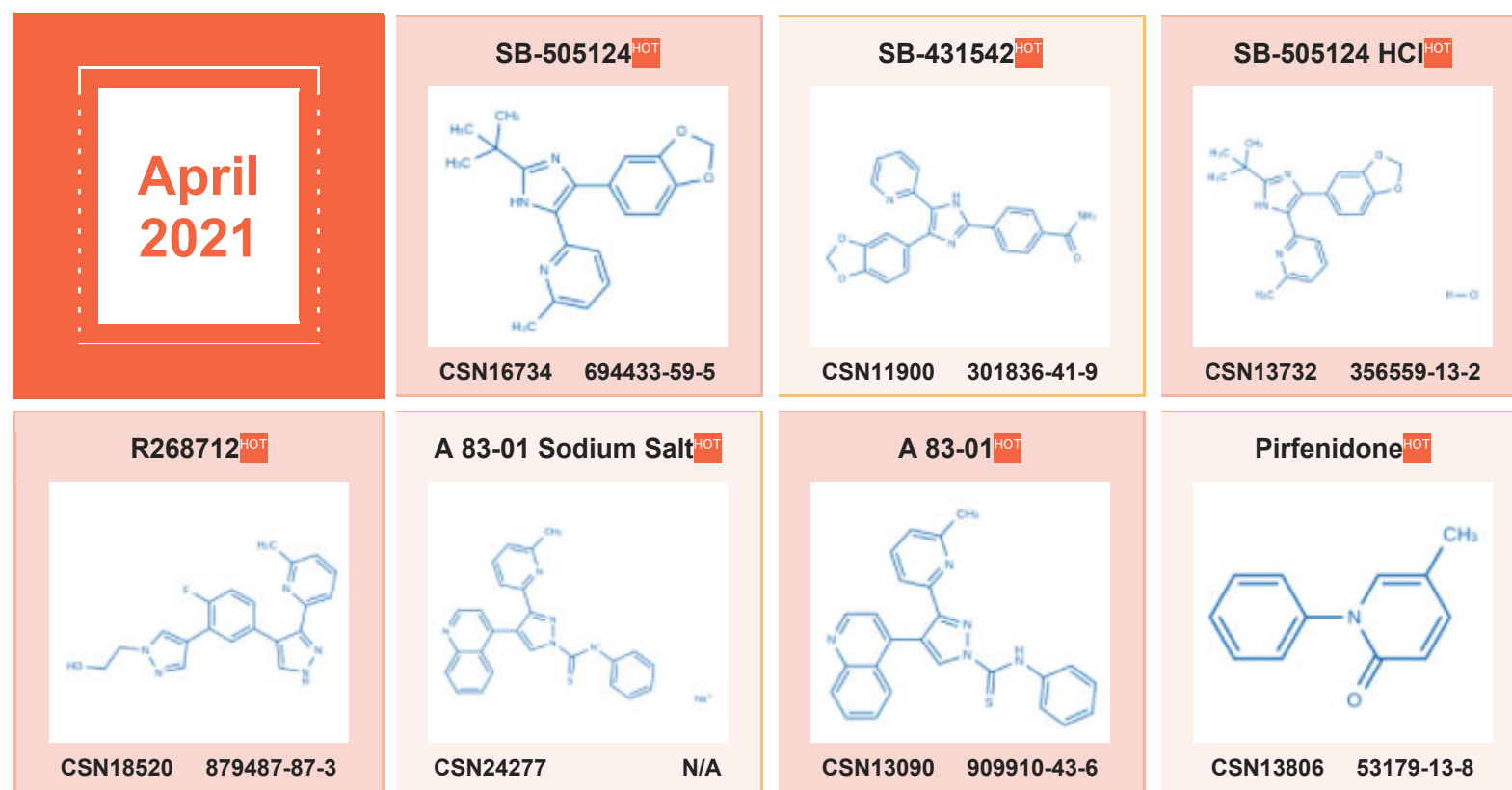


Figure 3: The pathway of cancer cells evading the tumor inhibitory effect of TGF - β ^[4]

Products

As a leading supplier of small-molecule compound, CSNpharm offers a number of TGF- β and TGFBR inhibitors, as well as the TGF- β signaling pathway inhibitor/activator array for scientific use. We also offer the Kinase Inhibitor Library, which includes 470 kinase inhibitors and covers over 80 kinase targets, for the high-throughput and high-content screening of protein kinase targets.

TGF-β Receptors



References

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