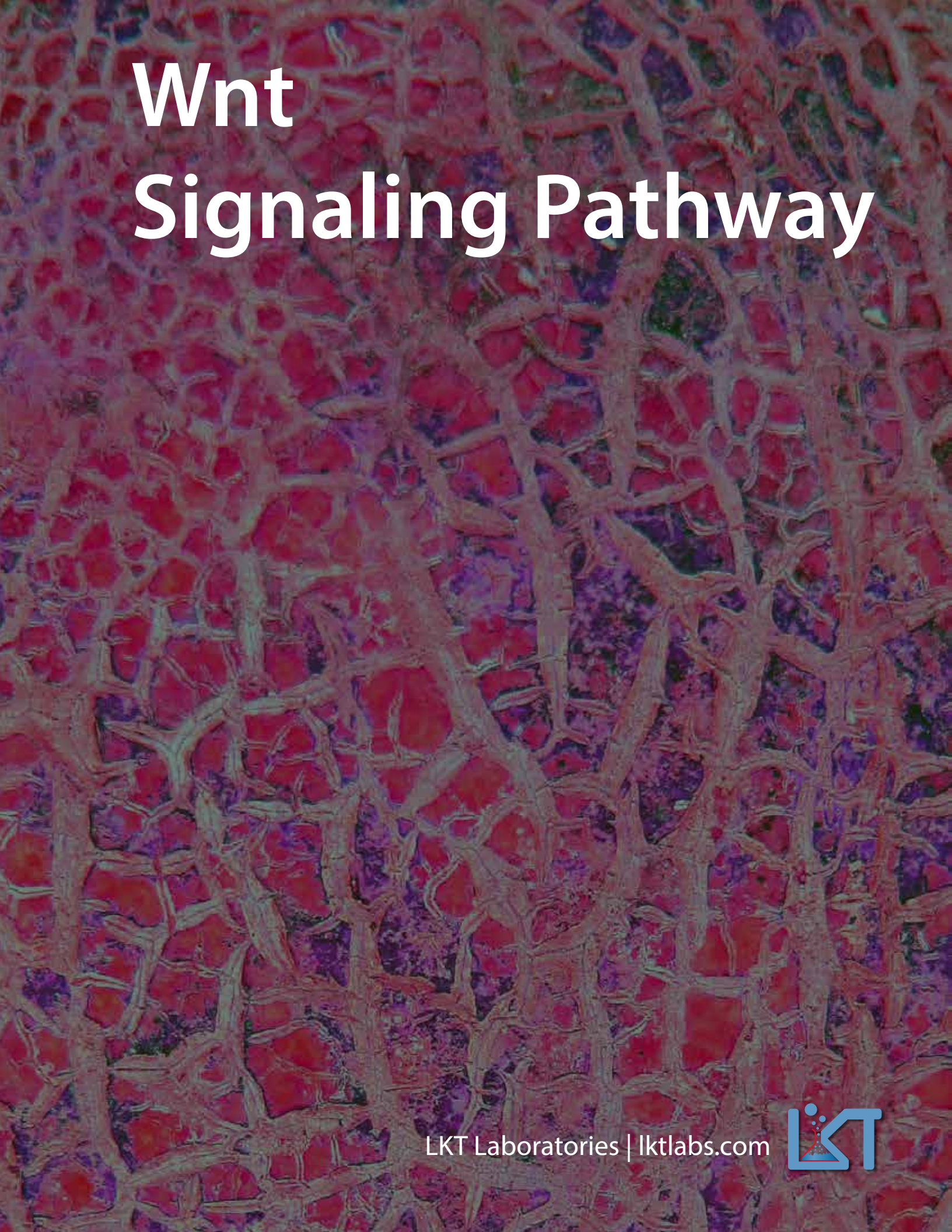
Wnt Signaling Pathway



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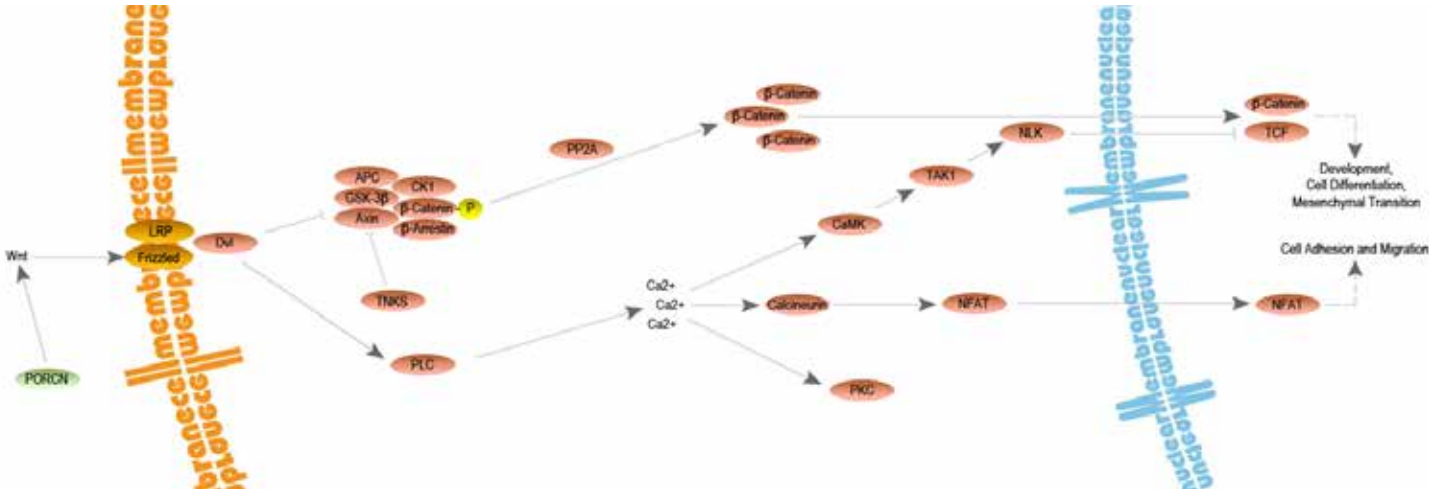
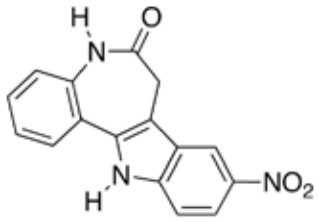
Introduction to the Wnt signaling pathway



The family of Wnt signaling pathways includes three pathways, all stimulated through the binding of Wnt to the surface receptor Frizzled. The canonical Wnt signaling pathway transduces the signal from Frizzled to Dishevelled, a protein that further signals to a destruction complex bound to β-catenin. Unless stimulated, this complex of proteins induces proteasomal degradation of β-catenin. When activated, β-catenin is dephosphorylated and enters the nucleus to stimulate cell proliferation, cell differentiation, and development. The non-canonical/calcium-dependent Wnt signaling pathway is involved in regulation of intracellular calcium levels and cell adhesion. Here, Dishevelled interacts with a trimeric G-protein to stimulate downstream release ofcalcium, which activates calcineurin and CaMK, leading to activation of the transcription factor NFAT. Lastly, the non-canonical/planar cell polarity pathway (not shown) transduces signals from Dishevelled to Rho and ROCK to stimulate actin polymerization and cytoskeleton restructuring. Several components in these pathways play a role in the development of several diseases, including cancer and type 2 diabetes.

Wnt Signaling Modulators

ID	Name	Description	Purity
A4577	Alsterpaullone	Indirectly activates Wnt signaling	≥98%
B3573	Bisdemethoxycurcumin	Indirectly inhibits Wnt signaling	≥98%
C2945	Chlorophyllin sodium copper salt	Indirectly inhibits Wnt signaling	≥99%
K9600	KY-02111	Indirectly inhibits Wnt signaling	≥98%
M9367	Myricetin	Indirectly activates Wnt signaling	≥98%
N1982	Neuromedin U, rat	Indirectly activates Wnt signaling	≥95%
O1078	Octreotide acetate	Indirectly inhibits Wnt signaling	≥98%



A4577 Alsterpaullone

Tankyrase Inhibitors

ID	Name	Description	Purity
J8800	JW55	Directly inhibits tankyrase	≥98%
X0384	XAV-939	Directly inhibits tankyrase	≥95%

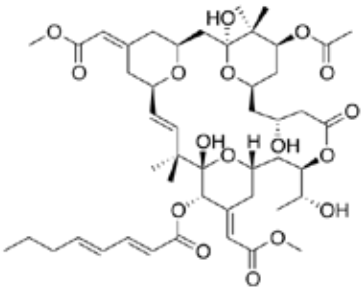
Tankyrases are members of the Poly (ADP-ribose) polymerase (PARP) family of proteins that contain ankyrin repeats, an oligomerization domain, and a PARP catalytic domain. Tankyrases interact with Axin, one component of the β-catenin destruction complex, inducing Axin degradation degradation through the ubiquitin-proteasome pathway. Inhibition of tankyrases stabilizes Axin, stimulating destruction of β-catenin and preventing downstream activation of processes such as cell differentiation and epithelial-to-mesenchymal transition.

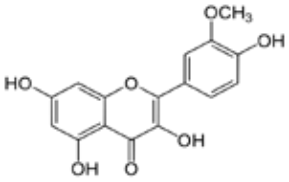
β-Catenin Inhibitors

β-Catenin is a protein that regulates cell adhesion, differentiation, and development. β-Catenin is a component of the cadherin protein complex that amplifies signal transduction and stimulates gene transcription in the Wnt signaling pathway. This protein binds transcriptions factors to stimulate development of entire body regions in early embryo stages. It also plays a role in the maintenance of stem cell pluripotency and differentiation. In later development stages, it induces epithelial-to-mesenchymal transition. Mutations in β-catenin are commonly implicated in cancers such as hepatocellular carcinoma, colorectal cancer, ovarian carcinoma, and lung cancer. Often, these cancers feature loss-of-function mutations that prevent regulation of β-catenin and allow it to stimulate gene transcription unchecked.

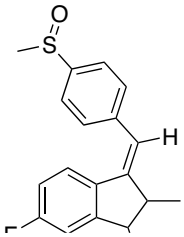
ID	Name	Description	Purity
A4931	3-Aminobenzamide	Indirectly inhibits β-catenin	≥97%
B6998	Bryostatin 1	Indirectly inhibits β-catenin	≥98%
E7309	Esculetin	Directly inhibits β-catenin	≥98%
I7357	Isorhamnetin	Indirectly inhibits β-catenin	≥98%
S8145	Sulindac	Indirectly inhibits β-catenin	≥98%
S8147	Sulindac Sulfide	Indirectly inhibits β-catenin	≥98%
S8146	Sulindac Sulfone	Indirectly inhibits β-catenin	≥97%
T1777	S,S-(+)-Tetrandrine	Indirectly inhibits β-catenin	≥98%
T7035	Triptolide	Indirectly inhibits β-catenin	≥98%
T7056	Troglitazone	Indirectly inhibits β-catenin	≥97%

B6998 Bryostatin I

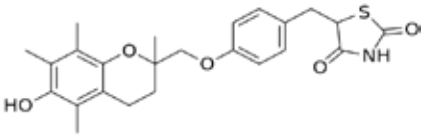




I7357 Isorhamnetin



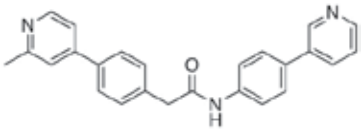
S8145 Sulindac



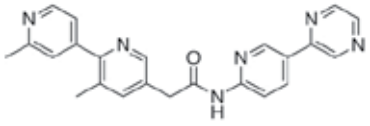
T7056 Troglitazone

PORCN Inhibitors

ID	Name	Description	Purity
C0800	C59	Directly inhibits PORCN	≥98%
I9060	IWP-2	Directly inhibits PORCN	≥98%
L2540	LGK-974	Directly inhibits PORCN	≥98%



C0800 C59



L2540 LGK-974

PORCN is a member of the membrane-bound O-acyl transferase (MBOAT) family that regulates Wnt signaling. Palmitoylation by PORCN is required for Wnt to be released from the Golgi to the cell surface and also to bind to the Frizzled receptor. Without PORCN, Wnt ligands are not secreted and embryos fail to gastrulate. PORCN is a key protein required for embryonic development, but inhibiting it can also limit Wnt-driven signaling of β-catenin and other proteins that play roles in the development of diseases such as cancer.

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