

Title (en)
ANTAGONISTS OF BMP AND TGF BETA SIGNALLING PATHWAYS

Title (de)
ANTAGONISTEN VON BMP- UND TGF-BETA SIGNALWEGEN

Title (fr)
ANTAGONISTES DES VOIES DE SIGNALISATION BMP ET TGF BETA

Publication
EP 1192174 A4 20020828 (EN)

Application
EP 00941398 A 20000612

Priority

- US 0016250 W 20000612
- US 13896999 P 19990611

Abstract (en)
[origin: WO0077168A2] This invention provides unique members of the Hect family of ubiquitin ligases that specifically target BMP and TGF beta / activin pathway-specific Smads. The novel ligases have been named Smurf1 and Smurf2. They directly interact with Smads1 and 5 and Smad7, respectively, and regulate the ubiquitination, turnover and activity of Smads and other proteins of these pathways. Smurf1 interferes with biological responses to BMP, but not activin signalling. In amphibian embryos Smurf1 inhibits endogenous BMP signals, resulting in altered pattern formation and cell fate specification in the mesoderm and ectoderm. The present invention provides a unique regulatory link between the ubiquitination pathway and the control of cell fate determination by the TGF beta superfamily during embryonic development. Thus, Smurf1 is a negative regulator of Smad1 signal transduction, by targeting Smad1, Smurf1 blocks BMP signalling. In mammalian cells, Smurf2 suppresses TGF beta signalling, and in Xenopus, blocks formation of dorsal mesoderm and causes anterior truncation of the embryos. Smurf2 forms a stable complex with Smad7, which induces degradation and downregulation of TGF beta /activin signalling.

IPC 1-7
C07H 21/04; C12N 15/00; C07K 14/00; C12N 9/00

IPC 8 full level
A01K 67/027 (2006.01); **A61K 31/7088** (2006.01); **A61K 38/00** (2006.01); **A61K 39/395** (2006.01); **A61K 45/00** (2006.01); **A61K 48/00** (2006.01); **A61P 19/08** (2006.01); **A61P 25/00** (2006.01); **A61P 27/02** (2006.01); **A61P 43/00** (2006.01); **C07K 16/40** (2006.01); **C12N 1/15** (2006.01); **C12N 1/19** (2006.01); **C12N 1/21** (2006.01); **C12N 5/10** (2006.01); **C12N 9/00** (2006.01); **C12N 15/09** (2006.01); **C12Q 1/02** (2006.01); **G01N 33/15** (2006.01); **G01N 33/50** (2006.01); **G01N 33/53** (2006.01)

CPC (source: EP)
A61P 19/08 (2017.12); **A61P 25/00** (2017.12); **A61P 27/02** (2017.12); **A61P 43/00** (2017.12); **C12N 9/93** (2013.01); **A01K 2217/05** (2013.01)

Citation (search report)

- [X] WO 9712962 A1 19970410 - COLD SPRING HARBOR LAB [US], et al
- See references of WO 0077168A2

Designated contracting state (EPC)
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)
WO 0077168 A2 20001221; WO 0077168 A3 20010503; AU 5610700 A 20010102; AU 782355 B2 20050721; CA 2376675 A1 20001221; CN 100379752 C 20080409; CN 1409722 A 20030409; EP 1192174 A2 20020403; EP 1192174 A4 20020828; IL 147005 A0 20020814; JP 2003502064 A 20030121

DOCDB simple family (application)
US 0016250 W 20000612; AU 5610700 A 20000612; CA 2376675 A 20000612; CN 00811354 A 20000612; EP 00941398 A 20000612; IL 14700500 A 20000612; JP 2001504003 A 20000612