

Recent patents related to liver X receptors

Liver X receptors (LXRs) are nuclear receptors that have a key role in the regulation of lipid homeostasis in tissues such as the liver, brain and intestine. In their Review on p433, Hong and Tontonoz highlight how LXRs could be targeted for the treatment of lipid disorders, including atherosclerosis and Alzheimer's disease.

Here in TABLE 1 we highlight patent applications published in the past 2 years related to LXRs. Data were researched using the [Espacenet](#) database.

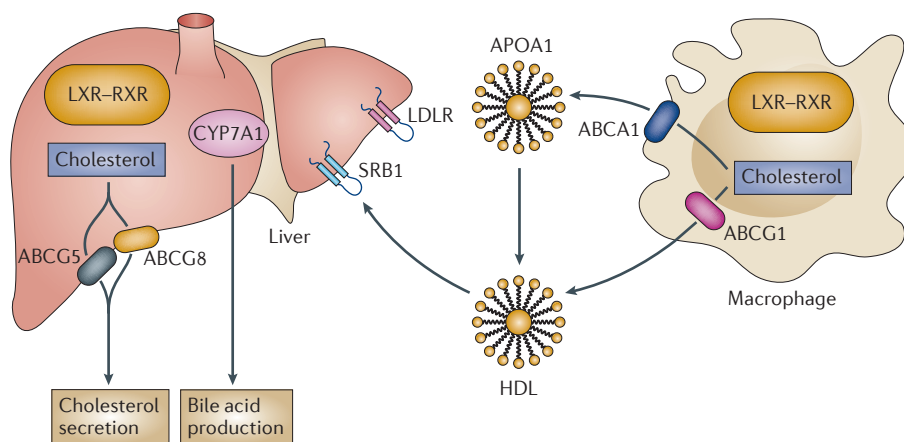


Table 1 | Recent published patent applications related to LXRs

Patent numbers	Applicants	Subject
WO 2013130892	Anayaderm	LXR modulators that are useful for the treatment of dermal disorders
US 2014018321 CN 103443082	Bristol-Myers Squibb	Imidazole prodrugs that act as LXR modulators and are useful for treating atherosclerosis, insulin resistance, osteoarthritis, stroke, hyperglycaemia, dyslipidaemia, psoriasis, diabetes, cancer and inflammation
MX 2011012559	Exelixis	Compounds that modulate the activity of LXRs and are useful for treating atherosclerosis, insulin resistance, osteoarthritis, stroke, hyperglycaemia, dyslipidaemia and psoriasis
US 2013345220 US 2012214812	Genomics Institute of the Novartis Research Foundation	LXR modulators that can be used to treat cardiovascular disease, diabetes, neurodegenerative diseases and inflammation
CN 102872212	Golden Biotechnology	A method of screening for LXR agonists (in particular those from <i>Rhizoma Cimicifugae</i>) that uses alpha-secreted alkaline phosphatase expression plasmids
US 2013338219	InterMed Discovery	Terpenoid spiroketal compounds that act as LXR agonists
US 2013143959	InterMed Discovery	Compounds extracted from plants of the genera <i>Schisandra</i> , <i>Illicium</i> , <i>Kadsura</i> , <i>Steganotaenia</i> or <i>Magnolia</i> that act as LXR modulators and are useful for controlling body weight
US 2012309730	Johns Hopkins University and the University of California	Oxysterols that activate LXR signalling and inhibit Hedgehog signalling, and can be used to control cell proliferation or the metastatic activity of a cell or tissue in cancer
NZ 589504	Kowa Company	Substituted carbinol compounds that have a cyclic linker and are LXR agonists; useful for treating atherosclerosis, arteriosclerosis, dyslipidaemia, hypercholesterolaemia, lipid-related diseases and inflammatory diseases
CN 102861023	Ocean University of China	The application of 24(S)-saringosterol as an LXR β agonist
RU 2011108359	Seoul National University	A pharmaceutical composition containing a 1,2-dithiol-thione derivative that can be used for treating diseases mediated by high LXR α expression
CN 102482315	University of Chicago	LXR agonists and methods of using one of the compounds to lower blood cholesterol levels and to treat cancer, atherosclerosis, diabetes, Alzheimer's disease and corneal arcus
WO 2012142039	University of North Dakota	The combination of an LXR modulator and an oestrogen receptor modulator for treating age-related diseases
WO 2013138565 WO 2013138568	Vitae Pharmaceuticals	LXR modulators that are useful for treating lipid disorders, cancer, acneiform skin conditions, inflammatory skin disease and immunological disorders
CN 103063840	Wuhan Institute of Virology	The application of the cellular target of LXR agonists in the preparation of drugs for treating hepatitis C virus infection; the LXR agonists GW3965 and T0901317 have significant anti-hepatitis C activity <i>in vitro</i>
MX 2012014801 CA2 804177	Wyeth (Pfizer)	Novel quinoline esters that are LXR modulators and are useful for treating skin disorders
CN 102920689	XinXiang Medical University	The use of an LXR activator — particularly T0901317 — that crosses the blood–brain barrier for reducing an intracephalic nerve-directed inflammatory reaction; useful for treating senile dementia
KR 101225486	Yonsei University	A pharmaceutical composition containing an extract from <i>Smilax china</i> Linn., which reduces the expression of LXR α , SREBP1C, the fatty acid translocase CD36 or FABP4; useful for treating obesity, hyperlipidaemia or fatty liver

FABP4, fatty acid binding protein 4 (also known as aP2); LXR, liver X receptor; SREBP; sterol regulatory element-binding protein.