

Bile acid

Overview: The bile acid receptor (GPBA, provisional nomenclature) responds to bile acids produced during the liver metabolism of cholesterol.

Nomenclature	GPBA
Other names	BG37, GPCR19, GPR131, M-BAR, MGC40597, TGR5
Ensembl ID	ENSG00000179921
Principal transduction	G _s (Maruyama <i>et al.</i> , 2002)
Rank order of potency	Lithocholic acid > deoxycholic acid > chenodeoxycholic acid, cholic acid (Maruyama <i>et al.</i> , 2002; Kawamata <i>et al.</i> , 2003)
Selective agonists	Oleanolic acid (Sato <i>et al.</i> , 2007)

Disruption of GPBA expression is reported to protect from cholesterol gallstone formation (Vassileva *et al.*, 2006).

Further Reading

- Houten SM, Watanabe M, Auwerx J (2006). Endocrine functions of bile acids. *EMBO J* **25**: 1419–1425.
- Lefebvre P, Cariou B, Lien F, Kuipers F, Staels B (2009). Role of bile acids and bile acid receptors in metabolic regulation. *Physiol Rev* **89**: 147–191.
- Nguyen A, Bouscarel B (2008). Bile acids and signal transduction: role in glucose homeostasis. *Cell Signal* **20**: 2180–2197.
- Sato H, Macchiarulo A, Thomas C, Gioiello A, Une M, Hofmann AF *et al.* (2008). Novel potent and selective bile acid derivatives as TGR5 agonists: biological screening, structure-activity relationships, and molecular modeling studies. *J Med Chem* **51**: 1831–1841.
- Thomas C, Auwerx J, Schoonjans K (2008). Bile acids and the membrane bile acid receptor TGR5 – connecting nutrition and metabolism. *Thyroid* **18**: 167–174.
- Tiwari A, Maiti P (2009). TGR5: an emerging bile acid G-protein-coupled receptor target for the potential treatment of metabolic disorders. *Drug Discov Today* **14**: 523–530.
- Wei J, Qiu DK, Ma X (2009). Bile acids and insulin resistance: implications for treating nonalcoholic fatty liver disease. *J Dig Dis* **10**: 85–90.

References

- Kawamata Y *et al.* (2003). *J Biol Chem* **278**: 9435–9440.
- Maruyama T *et al.* (2002). *Biochem Biophys Res Commun* **298**: 714–719.
- Sato H *et al.* (2007). *Biochem Biophys Res Commun* **362**: 793–798.
- Vassileva G *et al.* (2006). *Biochem J* **398**: 423–430.