Over the past decade, it has become apparent that bile acids are involved in a host of activities beyond their classic functions in fat and fat-soluble vitamin absorption. The identification of the farnesoid X receptor (FXR) as a receptor directly activated by bile acids and the discovery that bile acids are also ligands for the membrane-bound, G-protein coupled bile acid receptor 1 (also known as TGR5) have opened new avenues of research. Both FXR and TGR5 regulate various elements of glucose, lipid and energy metabolism. Consequently, a picture has emerged of bile acids acting as modulators of (postprandial) metabolism. Therefore, strategies that interfere with either bile acid metabolism or signalling cascades mediated by bile acids (e.g. through FXR or TGR5) may represent novel therapeutic approaches for metabolic diseases. Synthetic modulators of FXR have been designed and tested, primarily in animal models, leading to approval of a ligand for FXR in the clinic in 2016.

Treatment of patients with type 2 diabetes mellitus (T2DM) with bile acid sequestrants causes substantial reductions in plasma levels of glucose and HbA1c. The use of these sequestrants also reduce plasma cholesterol levels and thus have unexpected benefits. Finally neonatal bile acid metabolism shows remarkable differences of which the (patho)physiological impact has remained elusive.