Abstract

The constitutive androstane receptor (CAR) plays an important role as a xenosensor in the organism and is therefore widely expressed in the kidney, liver, gallbladder and in the small intestine epithelium, where the biotransformation of xenobiotic occurs. CAR is also an important factor in the elimination of bile acids and bilirubin. CAR has also been shown to have an important role in regulation of glucose and lipid metabolism. Impairment of lipid and glucose metabolism is a common cause of cardiovascular and metabolic diseases such as atherosclerosis, type 2 diabetes, obesity and insulin resistance. These diseases are called metabolic syndrome and result in severe organ damage. CAR respective its complex with RXRα (retinoid X receptor α) has become a promising biological target for drug discovery for metabolic syndrome. The major aim of this study was a structural characterization of the CAR/RXRα protein complex together with the agonist IV676*HCl, which would describe in detail the interaction of this small molecule with the receptor. Obtained structural information would be used to design improved agonists.