

1.3 Propranolol (PRN)

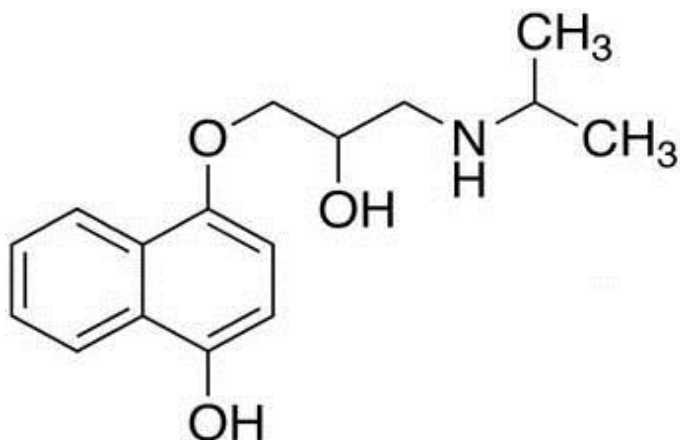


Figure 1.3 Propranolol chemical structure.

Propranolol (PRN) (**Figure 1.3**) is the prototype of all β -adrenergic receptor antagonists and is the first effective β -blocker interacting with both β_1 and β_2 receptors with equal affinity. It does not have α receptor or muscarinic receptor blocking activity but it may block some serotonin receptors in the brain (Brunton *et al.* 2006; Katzung *et al.* 2004; Wang *et al.* 2013). Additionally, PRN lacks intrinsic sympathomimetic activity (Brunton *et al.* 2006; Katzung *et al.* 2004; Wang *et al.* 2013), and is one of the essential drugs listed by World Health Organization's List of Essential Medicines as one of the drugs used for a basic health system (WHO 2011). It is present as a white crystalline powder and is soluble in both water and alcohol, its pK_a value is 9.4 (Salman *et al.* 2010).