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Human P450 enzymes can be classified on the basis of their substrate classes, with some overlap. Most of the 57 human P450s have some catalytic function associated with them, at least with some xenobiotic chemicals. However, there are several “orphans” that are yet without substrates. We have been working with some of the orphans for more than a decade and used metabolomic approaches with some success. Current interest among the orphans are P450s 2S1, 4X1, and 20A1. We also use transgenic animal models to help guide our studies.



Classification of Human P450s Based on Major Substrate Class

Steroids	Xenobiotics	Fatty acids	Eicosanoids	Vitamins	Unknown “Orphans”
1B1	1A1*	2J2	4F2	2R1*	2A7
7A1*	1A2*	2U1	4F3	24A1**	2S1
7B1	2A6*	4A11	4F8	26A1	2W1
8B1	2A13*	4B1**	5A1	26B1	4A22
11A1*	2B6*	4F11	8A1*	26C1	
11B1	2C8*	4F12		27B1	4X1
11B2	2C9*	4F22		27C1	4Z1
		4V2			
17A1*	2C18				20A1
19A1*	2C19*				
21A2*	2D6*				
27A1	2E1*				
39A1	2F1				
46A1*	3A4*				
51A1*	3A5				
	3A7				
	3A43				

* X-ray crystal structure(s) reported (23/57) (**structure of animal ortholog)