International Tables for Crystallography (2006). Vol. F, Table 1.3.4.5, pp. 22–23.

Table 1.3.4.5. *Important human protein structures in drug design*

Proteins from other species that might have been studied as substitutes for human ones were left out because of space limitations. We apologize to the researchers affected.

Pharmacological category	Protein	Reference
Synaptic and neuroeffector junctional function	None	
Central nervous system function	None	
Inflammation	Fibroblast collagenase (MMP-1) (also important in cancer)	[1], [2], [3], [4]
	Gelatinase	[5], [6]
	Stromelysin-1 (MMP-3) (also important in cancer)	[7], [8], [9], [10], [11]
	Matrilysin (MMP-7) (also important in cancer)	[12]
	Neutrophil collagenase (MMP-8) (also important in cancer)	[13], [14], [15], [16]
	Collagenase-3 (MMP-13)	[17]
	Human neutrophil elastase (also important for cystic fibrosis)	[18], [19], [20]
	Interleukin-1 beta converting enzyme (ICE)	[21], [22]
	p38 MAP kinase	[23], [24]
	Phospholipase A2	[25], [26], [27]
Renal and cardiovascular function	Renin	[28]
Gastrointestinal function	None	
Cancer	17-Beta-hydroxysteroid dehydrogenase	[29], [30]
	BRCT domain (BRCA1 C-terminus)	[31]
	Bcr-Abl kinase	[32]
	Cathepsin B	[33]
	Cathepsin D	[34], [35]
	CDK2	[36]
	CDK6	[37]
	DHFR	[38], [39]
	Acidic fibroblast growth factor (FGF)	[40]
	FGF receptor tyrosine kinase domain	[41]
	Glycinamide ribonucleotide formyl transferase	[42]
	Interferon-beta	[43]
	MMPs: see Inflammation	
	p53	[44], [45]
	p60 Src	[46]
	Purine nucleoside phosphorylase	[47]
	ras p21	[48], [49], [50], [51]
	Serine hydroxymethyltransferase	[52]
	S-Adenosylmethionine decarboxylase	[53]
	Thymidylate synthase	[54]
	Topoisomerase I	[55], [56]
	Tumour necrosis factor	[57]
	Interleukin 1-alpha	[58]
	Interleukin 1-beta	[59]
	Interleukin 1-beta receptor	[60], [61]
	Interleukin 8	[62]
Immunomodulation	Calcineurin	[63]
	Cathepsin S	[64]
	Cyclophilin	[65], [66], [67]
	Immunophilin FKBP12	[68], [69], [70]
	Inosine monophosphate dehydrogenase	[71]
	Interferon-gamma	[72], [73]
	Lymphocyte-specific kinase Lck	[74]
	PNP	[47]
	Syk kinase	[75]
	Tumour necrosis factor	[57]
	ZAP Tyr kinase	[76]
	Interleukin 2	[77]
	Interleukin 5	[78]
Haematopoiesis	Erythropoietin receptor	[79], [80]

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Table 1.3.4.5. *Important human protein structures in drug design* (*cont.*)

Pharmacological category	Protein	Reference
Coagulation	AT III	[81], [82], [83], [84]
	Factor III	[85], [86]
	Factor VII	[87]
	Factor IX	[88]
	Factor X	[89]
	Factor XIII	[90]
	Factor XIV	[91]
	Fibrinogen: fragment	[92], [93]
	Plasminogen activator inhibitor (PAI)	[94], [95], [96]
	Thrombin	[97], [98], [99]
	tPA	[100]
	Urokinase-type plasminogen activator	[101]
	von Willebrand factor	[102], [103], [104]
Hormones and hormone receptors	Insulin	[105]
	Insulin receptor	[106], [107]
	Human growth hormone + receptor	[108]
	Oestrogen receptor	[109], [110]
	Progesterone receptor	[111]
	Prolactin receptor	[112]
Ocular function	Carbonic anhydrase	[113]
Genetic diseases	See Table 1.3.3.1	
Drug binding	Human serum albumin	[114], [115]
Drug metabolism	Glutathione S-transferase A-1	[116], [117]
	Glutathione S-transferase A4-4	[118]
	Glutathione S-transferase Mu-1	[119]
	Glutathione S-transferase Mu-2	[120]
Neurodegeneration	Aldose reductase	[121]
	JNK3	[122]
Osteoporosis	Cathepsin K	[123], [64]
	Src SH2	[126]
Various	Interferon-alpha 2b	[124]
	Bcl-xL	[125]

References: [1] Borkakoti *et al.* (1994); [2] Lovejoy, Cleasby *et al.* (1994); [3] Lovejoy, Hassell *et al.* (1994); [4] Spurlino *et al.* (1994); [5] Libson *et al.* (1995); [6] Gohlke *et al.* (1996); [7] Becker *et al.* (1995); [8] Dhanaraj *et al.* (1996); [9] Esser *et al.* (1997); [10] Gomis-Ruth *et al.* (1997); [11] Finzel *et al.* (1998); [12] Browner *et al.* (1995); [13] Bode *et al.* (1994); [14] Reinemer *et al.* (1994); [15] Stams *et al.* (1994); [16] Betz *et al.* (1997); [17] Gomis-Ruth *et al.* (1996); [18] Bode *et al.* (1986); [19] Wei *et al.* (1988); [20] Navia, McKeever *et al.* (1989); [21] Walker *et al.* (1994); [22] Rano *et al.* (1997); [23] Wilson *et al.* (1996); [24] Tong *et al.* (1997); [25] Scott *et al.* (1991); [26] Wery *et al.* (1991); [27] Kitadokoro *et al.* (1998); [28] Sielecki *et al.* (1989); [29] Ghosh *et al.* (1995); [30] Breton *et al.* (1996); [31] Zhang *et al.* (1998); [32] Nam *et al.* (1996); [33] Musil *et al.* (1991); [34] Baldwin *et al.* (1993); [35] Metcalf & Fusek (1993); [36] De Bondt *et al.* (1993); [37] Russo *et al.* (1998); [38] Oefner *et al.* (1988); [39] Davies *et al.* (1990); [40] Blaber *et al.* (1996); [41] McTigue *et al.* (1999); [42] Varney *et al.* (1997); [43] Karpusas *et al.* (1997); [44] Cho *et al.* (1994); [45] Gorina & Pavletich (1996); [46] Xu *et al.* (1997); [47] Ealick *et al.* (1990); [48] DeVos *et al.* (1988); [49] Pai *et al.* (1989); [50] Krengel *et al.* (1990); [51] Scheffzek *et al.* (1997); [52] Renwick *et al.* (1998); [53] Ekstrom *et al.* (1999); [54] Schiffer *et al.* (1995); [55] Redinbo *et al.* (1998); [56] Stewart *et al.* (1998); [57] Banner *et al.* (1993); [58] Graves *et al.* (1990); [59] Priestle *et al.* (1988); [60] Schreuder *et al.* (1997); [61] Vigers *et al.* (1997); [62] Baldwin *et al.* (1991); [63] Kissinger *et al.* (1995); [64] McGrath *et al.* (1998); [65] Kallen *et al.* (1991); [66] Ke *et al.* (1991); [67] Pfuegl *et al.* (1993); [68] Van Duyne, Standaert, Karplus *et al.* (1991); [69] Van Duyne, Standaert, Schreiber & Clardy (1991); [70] Van Duyne *et al.* (1993); [71] Colby *et al.* (1999); [72] Ealick *et al.* (1991); [73] Walter *et al.* (1995); [74] Zhu *et al.* (1999); [75] Futterer *et al.* (1998); [76] Meng *et al.* (1999); [77] Brandhuber *et al.* (1987); [78] Milburn *et al.* (1993); [79] Livnah *et al.* (1996); [80] Livnah *et al.* (1998); [81] Carrell *et al.* (1994); [82] Schreuder *et al.* (1994); [83] Skinner *et al.* (1997); [84] Skinner *et al.* (1998); [85] Muller *et al.* (1994); [86] Muller *et al.* (1996); [87] Banner *et al.* (1996); [88] Rao *et al.* (1995); [89] Padmanabhan *et al.* (1993); [90] Yee *et al.* (1994); [91] Mather *et al.* (1996); [92] Pratt *et al.* (1997); [93] Spraggon *et al.* (1997); [94] Mottonen *et al.* (1992); [95] Aertgeerts *et al.* (1995); [96] Xue *et al.* (1998); [97] Bode *et al.* (1989); [98] Rydel *et al.* (1990); [99] Rydel *et al.* (1994); [100] Laba *et al.* (1996); [101] Spraggon *et al.* (1995); [102] Bienkowska *et al.* (1997); [103] Huizinga *et al.* (1997); [104] Emsley *et al.* (1998); [105] Ciszak & Smith (1994); [106] Hubbard *et al.* (1994); [107] Hubbard (1997); [108] DeVos *et al.* (1992); [109] Schwabe *et al.* (1993); [110] Brzozowski *et al.* (1997); [111] Williams & Sigler (1998); [112] Somers *et al.* (1994); [113] Kannan *et al.* (1975); [114] He & Carter (1992); [115] Curry *et al.* (1998); [116] Sinning *et al.* (1993); [117] Cameron *et al.* (1995); [118] Bruns *et al.* (1999); [119] Tskovsky *et al.* (1999); [120] Raghunathan *et al.* (1994); [121] Wilson *et al.* (1992); [122] Xie *et al.* (1998); [123] Thompson *et al.* (1997); [124] Radhakrishnan *et al.* (1996); [125] Muchmore *et al.* (1996); [126] Waksman *et al.* (1993).

references