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The principles underlying the use of powder diffraction data in solving pharmaceutical crystal structures

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Name	Fig. 6	Formula	SMILES string (generated using MarvinSketch v6.0.0)
Salicylic acid	a	C ₇ H ₆ O ₃	<chem>OC(=O)C1=CC=CC=C1O</chem>
Chlorothiazide	b	C ₇ H ₆ Cl ₁ N ₃ O ₄ S ₂	<chem>NS(=O)(=O)C1=CC2=C(NC=NS2(=O)=O)C=C1Cl</chem>
Ibuprofen	c	C ₁₃ H ₁₈ O ₂	<chem>CC(C)CC1=CC=C(C=C1)C(C)C(O)=O</chem>
L-glutamic acid	d	C ₅ H ₉ N ₁ O ₄	<chem>[NH3+][C@@H](CCC(O)=O)C([O-])=O</chem>
Remacemide nitrate	e	C ₁₇ H ₂₁ N ₃ O ₄	<chem>[O-]N(=O)=O.CC(CC1=CC=CC=C1)(NC(=O)C[NH3+])C1=CC=CC=C1</chem>
Tri-β-peptide	f	C ₃₂ H ₅₃ N ₃ O ₆	<chem>CC(C)C[C@H](NC(=O)[C@H](C)[C@H](C)NC(=O)[C@H](C)[C@@H](NC(=O)OC(C)(C)C(C)C)[C@@H](C)C(=O)OCC1=CC=CC=C1</chem>
Capsaicin	g	C ₁₈ H ₂₇ N ₁ O ₃	<chem>COC1=CC(CNC(=O)CCCC=C\C(C)C)=CC=C1O</chem>
Baicalein	h	C ₁₅ H ₁₀ O ₅	<chem>OC1=CC2=C(C(O)=C1O)C(=O)C=C(O2)C1=CC=CC=C1</chem>
Famotidine	i	C ₈ H ₁₅ N ₇ O ₂ S ₃	<chem>NC(N)=NC1=NC(CSCC\C(N)=N\N)(=O)=O)=CS1</chem>
Caffeine	j	C ₈ H ₁₀ N ₄ O ₂	<chem>CN1C=NC2=C1C(=O)N(C)C(=O)N2C</chem>
Captopril	k	C ₉ H ₁₅ N ₁ O ₃ S ₁	<chem>C[C@H](CS)C(=O)N1CCC[C@H]1C(O)=O</chem>
Cyheptamide	l	C ₁₆ H ₁₅ N ₁ O ₁	<chem>NC(=O)C1C2=CC=CC=C2CCC2=CC=CC=C12</chem>
Tolbutamide	m	C ₁₂ H ₁₈ N ₂ O ₃ S ₁	<chem>CCCCNC(=O)NS(=O)(=O)C1=CC=C(C)C=C1</chem>
Nifedipine	n	C ₁₇ H ₁₈ N ₂ O ₆	<chem>COC(=O)C1=C(C)NC(C)=C(C1C1=CC=CC=C1N(=O)=O)C(=O)OC</chem>
L-arginine	o	C ₆ H ₁₄ N ₄ O ₂	<chem>N[C@@H](CCCNC(N)=[NH2+])C([O-])=O</chem>
Amodiaquinium dichloride dihydrate	p	C ₂₀ H ₂₈ Cl ₃ N ₃ O ₃	<chem>O.[Cl-].CC[NH+](CC)CC1=CC(NC2=C3C=CC(Cl)=CC3=[NH+]C=C2)=CC=C1O</chem>
Vorinostat	q	C ₁₄ H ₂₀ N ₂ O ₃	<chem>ONC(=O)CCCCCCC(=O)NC1=CC=CC=C1</chem>
Amcinonide	r	C ₂₈ H ₃₅ F ₁ O ₇	<chem>CC(=O)OCC(=O)[C@@]12OC3(CCCC3)O[C@@H]1C[C@H]1[C@@H]3CCC4=CC(=O)C=C[C@]4(C)[C@@]3(F)[C@@H](O)C[C@]21C</chem>
Diphenhydramin e hydrochloride	s	C ₁₇ H ₂₂ Cl ₁ N ₁ O ₁	<chem>[Cl-].C[NH+](C)CCOC(C1=CC=CC=C1)C1=CC=CC=C1</chem>
Verapamil hydrochloride	t	C ₂₇ H ₃₉ Cl ₁ N ₂ O ₄	<chem>[Cl-].COC1=CC=C(CC[NH+](C)CCCC(C#N)(C(C)C)C2=CC=C(OC)C(OC)=C2)C=C1OC</chem>
Zopiclone dihydrate	u	C ₁₇ H ₂₁ Cl ₁ N ₆ O ₅	<chem>O.CN1CCN(CC1)C(=O)OC1N(C(=O)C2=NC=CN=C12)C1=CC=C(Cl)C=N1</chem>
Prilocaine	v	C ₁₃ H ₂₀ N ₂ O ₁	<chem>CCCNC(C)C(=O)NC1=CC=CC=C1C</chem>

(i) To produce a 2D structure, copy-&-paste the SMILES string into MarvinSketch;

- (ii) to produce a 3D structure, copy-&-paste the SMILES string into MarvinSketch and click 'Clean in 3D';
- (iii) to search for a corresponding CSD refcode, copy-&-paste the following into ConQuest: (a) the MarvinSketch 2D structure; (b) the formula, as shown above, checking the box for 'Formula applies to all molecules in structure added together' - then, combine the queries and search.