

SUPPORTING
MATERIAL :
GAUTAM R.
DESIRAJU
COLOR FIGURES



The following section shows selected figures from [1] in color, making the explained relationships easier to understand.

[1] Gautam R. Desiraju: *Crystal Clear—Engineering Complexity*. (Lives in Chemistry.) GNT Publishing, Berlin, 2026. doi: 10.47261/1611.

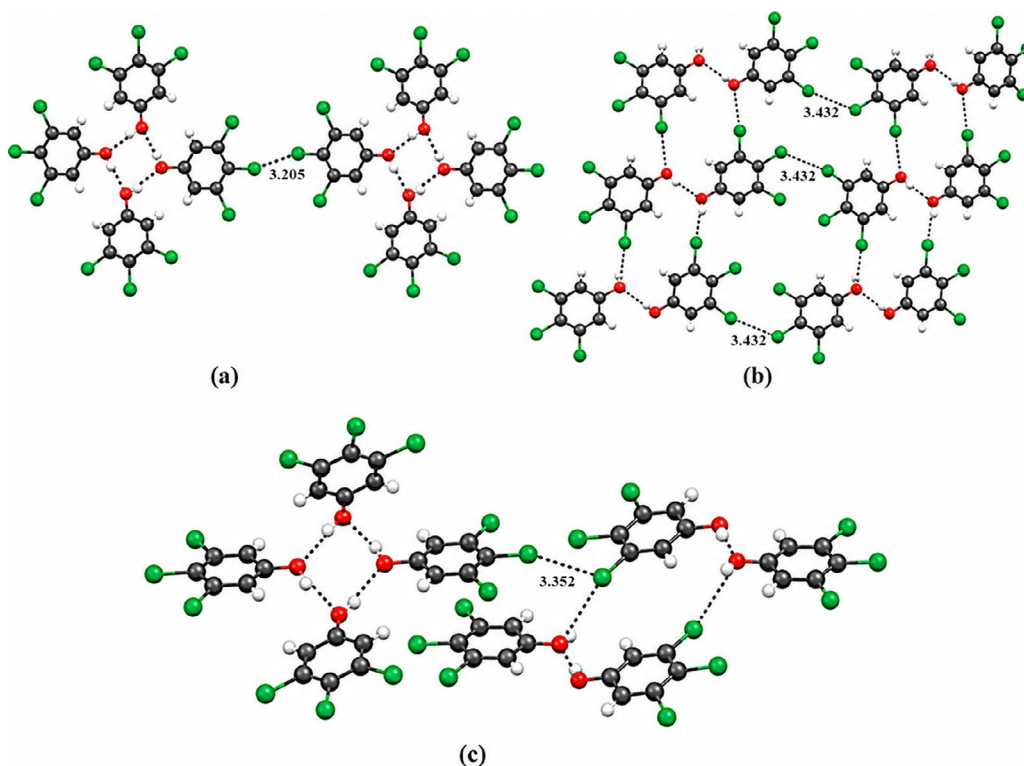


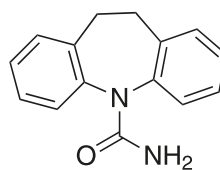
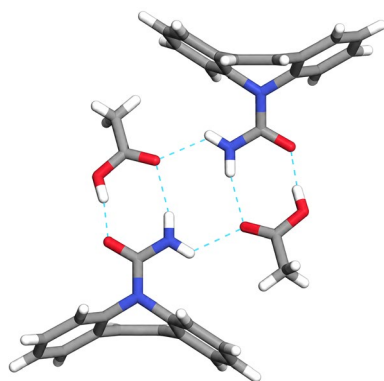
Fig. 6.6. 3,4,5-Trichlorophenol.
(a) Synthon from 4-chlorophenol;
(b) synthon from 3,5-dichlorophenol;
(c) connection between these modular synthons.
See [N].

Further reading

[N] A. Mukherjee, G. R. Desiraju: Halogen bonding and structural modularity in 2,3,4- and 3,4,5-trichlorophenol. *Cryst. Growth Des.* 2011, 11, 3735–3739.

Fig. 7.14.–7.15.

Typical pharmaceutical cocrystal. Carbamazepine–acetic acid. The drug has medicinal properties. The coformer confers solubility. Notice the two types of supramolecular synthons, one based on $\text{N-H}\cdots\text{O}=\text{C}$ and $\text{O-H}\cdots\text{O}=\text{C}$ and the other asymmetrical one based on just $\text{N-H}\cdots\text{O}=\text{C}$. See [N].



Carbamazepine

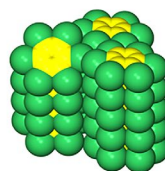
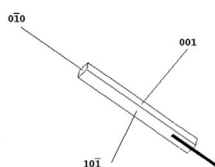
Further reading

- [N] M. J. Zaworotko, Ö. Almarsson: Crystal engineering of the composition of pharmaceutical phases. Do pharmaceutical co-crystals represent a new path to improved medicines? *Chem. Commun.* **2004**, 1889–1896.

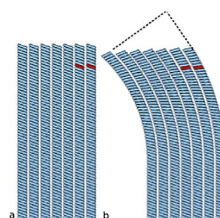
Fig. 8.8.

Organic crystals can be bent. Here is an example of plastic deformation in hexachlorobenzene. The preliminary report in *Chem Comm* was developed into a full paper in [E].

Bending crystals Interaction anisotropy in C_6Cl_6



C. M. Reddy et al, *Chem. Comm.*, 3945, 2005



Further reading

- [E] C. M. Reddy, M. T. Kirchner, R. C. Gundakaram, K. A. Padmanabhan, G. R. Desiraju: Isostructurality, polymorphism and mechanical properties of some hexahalogenated benzenes. The nature of halogen $\cdots$ halogen interactions. *Chem. Eur. J.* **2006**, *12*, 2222–2234.

Stoichiometric quaternary cocrystal

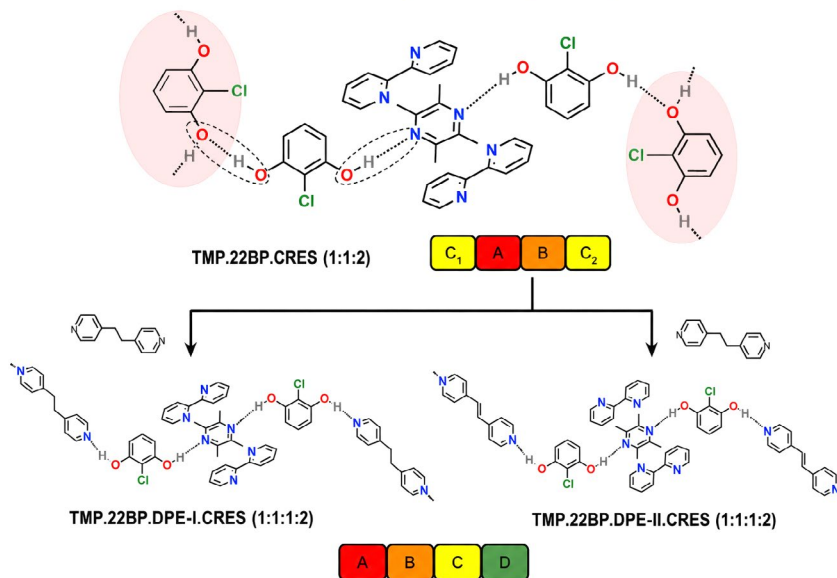


Fig. 8.9. Crystal engineering with supermolecular synthons towards a stoichiometric four-component molecular solid.

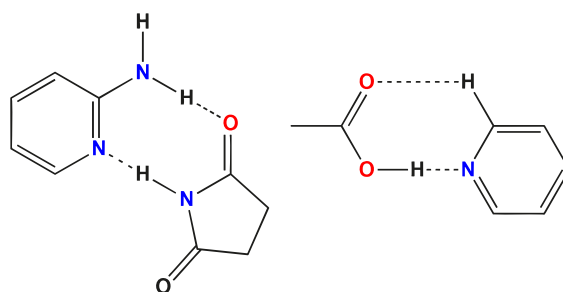


Fig. 10.2. Typical heterosynthons in drug c-Cocrystals. See [C].

Further reading

- [C] A. K. Nangia, G. R. Desiraju: Heterosynthons, solid form design and enhanced drug bioavailability. *Angew. Chem. Int. Ed.*, **2022**, *61*, 4100 – 4107.

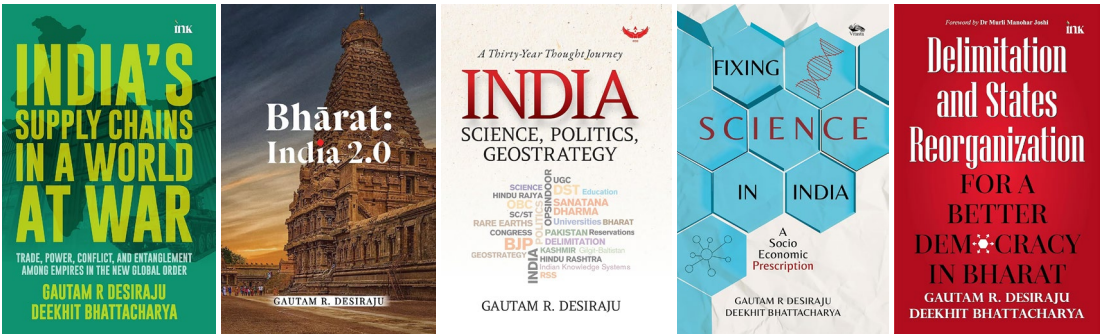


Fig. 10.7.–10.11. Further reading

Four of my books published in 2025 along with “Bhārat: India 2.0” (2022) [D, K–N].

- [D] G. R. Desiraju, D. Bhattacharya: *Fixing Science in India—A Socio-Economic Prescription*. Vitasta, Delhi, **2025**.
- [K] G. R. Desiraju: *India – Science, Politics, Geostrategy*. Garuda Prakashan, Delhi, **2025**.
- [L] G. R. Desiraju, D. Bhattacharya: *Delimitation and States Reorganization – For a Better Democracy in Bharat*. BluOne Ink, Delhi, **2025**.
- [M] G. R. Desiraju, D. Bhattacharya: *India’s Supply Chains in a World at War – Trade, Power, Conflict, and Entanglement among Empires in the New Global Order*. BluOne Ink, Delhi, **2025**.
- [N] G. R. Desiraju: *Bhārat – India 2.0*. Vitasta, Delhi, **2022**.

Image sources

Private archive of Gautam R. Desiraju: Fig. 8.9.

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