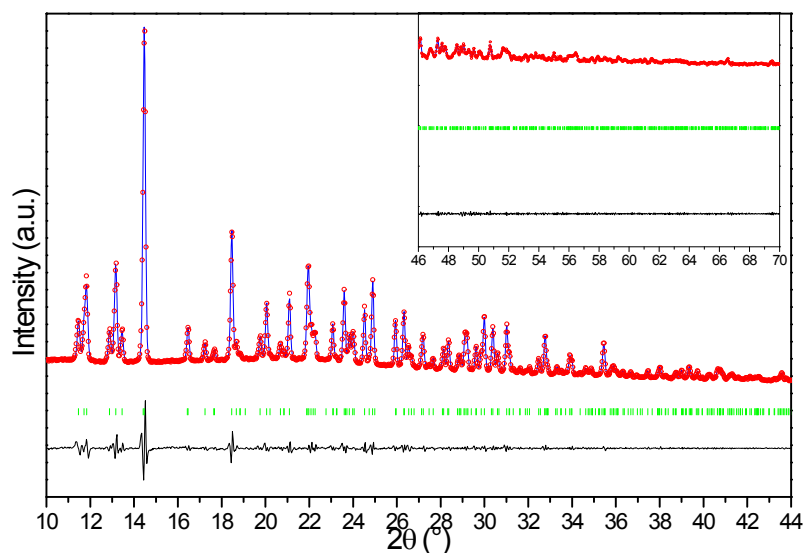


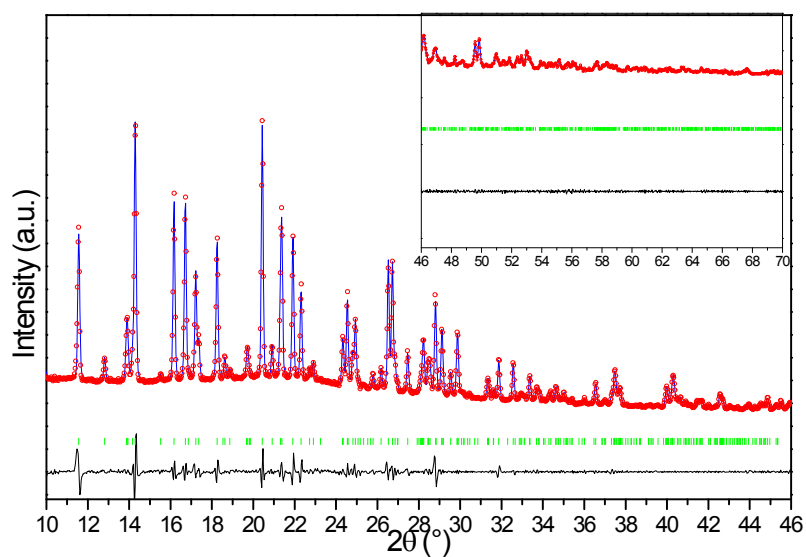
### Electronic Supplementary Information



**Fig. S1:** Pawley Refinement of the XRPD data for Sibutramine Hydrochloride Monohydrate (rac.Sibut.HCl.H<sub>2</sub>O) obtained at 294 K. Blue line: experimental pattern, empty red circles: calculated pattern, green vertical bars: peak positions, black line: residual XRPD patterns. The insert corresponds to the scale for the data between 46° and 70° magnified 15 times.

**Table S1.** Unit cell parameters for Sibutramine Hydrochloride Monohydrate (rac.Sibut.HCl.H<sub>2</sub>O) obtained from XRPD (this work) and single crystal. Crystal system: orthorhombic. Space group: Pbcn (Z=8 and Z'<sup>2</sup>=1)

|                          | Ref [16]       | This work       |
|--------------------------|----------------|-----------------|
|                          | Single crystal | powder          |
| temperature              | 294 K          | 294 K           |
| unit cell dimensions (Å) | a = 13.442(3)  | a = 13.4088(12) |
|                          | b = 9.374(2)   | b = 9.3919(8)   |
|                          | c = 30.110(7)  | c = 30.100(3)   |
| volume (Å <sup>3</sup> ) | 3794.0         | 3790.6(10)      |



**Fig. S2:** Pawley Refinement of the XRPD data for Sibutramine Hydrochloride anhydrous A obtained at 294 K. Blue line: experimental pattern, empty red circles: calculated pattern, green vertical bars: peak positions, black line: residual XRPD patterns. The insert corresponds to the scale for the data between 46° and 70° magnified 15 times.

**Table S2.** Unit cell parameters for sibutramine anhydrous A obtained from XRPD (this work) and single crystal. . Crystal system: monoclinic. Space group:  $P2_1/n$  ( $Z=4$ )

|                          | Ref [10]                  | This work                  |
|--------------------------|---------------------------|----------------------------|
|                          | Single crystal            | powder                     |
| temperature              | 293 K                     | 294 K                      |
| unit cell dimensions (Å) | $a = 7.321(2)$            | $a = 7.3206(8)$            |
|                          | $b = 25.456(2)$           | $b = 25.475(3)$            |
|                          | $c = 9.750(3)$            | $c = 9.765(1)$             |
|                          | $\beta = 101.60(2)^\circ$ | $\beta = 101.559(6)^\circ$ |
| volume (Å <sup>3</sup> ) | 1779.9(8)                 | 1784.2(6)                  |

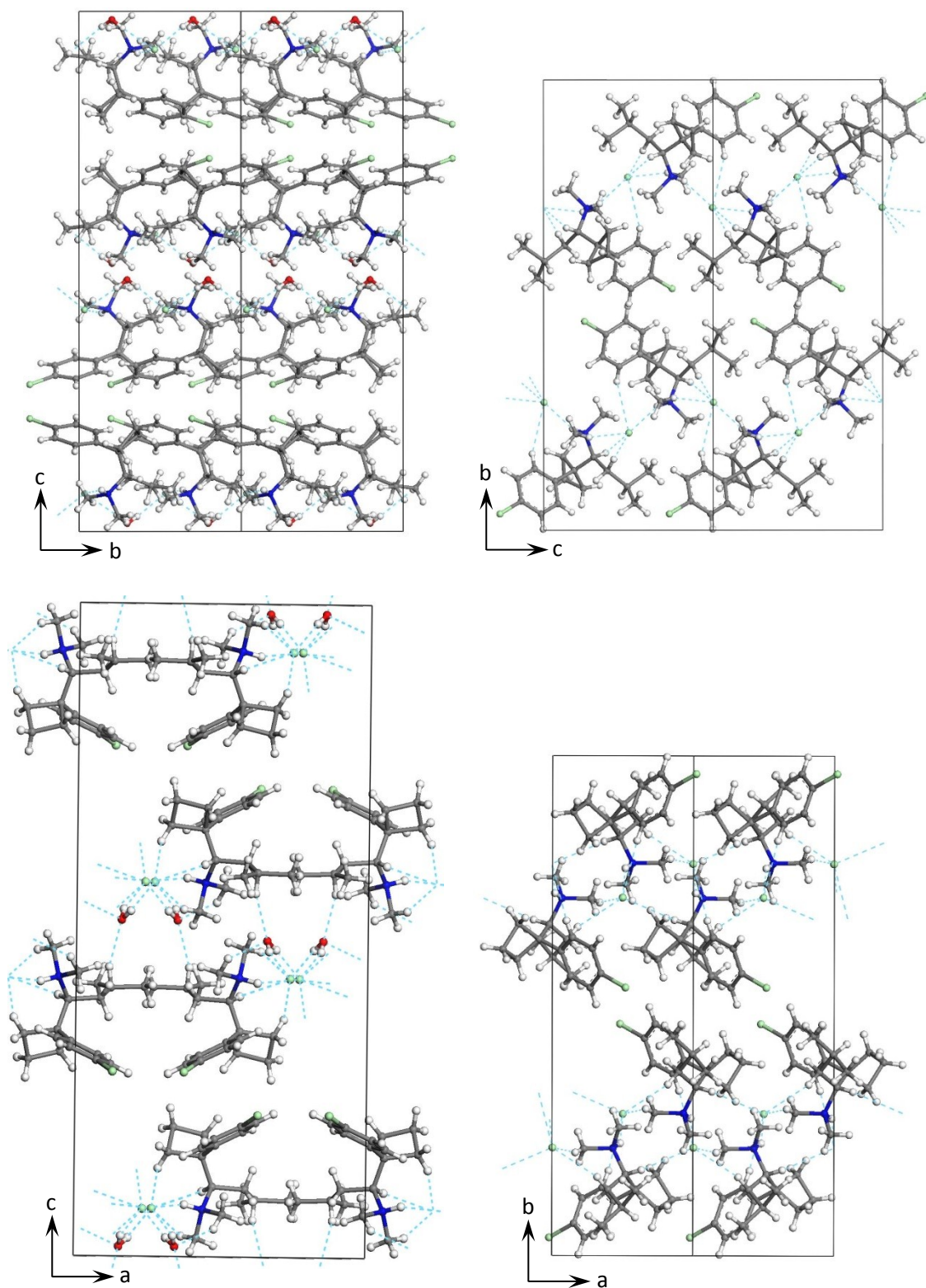
**Table S3.** Rietveld refinement data of sibutramine anhydrous B.

|                           |  |                 |
|---------------------------|--|-----------------|
| Formula                   | C <sub>17</sub> H <sub>27</sub> NCl <sub>2</sub> |                 |
| FW (g mol <sup>-1</sup> ) | 316.3  |                 |
| temperature               | 295(1) K   |                 |
| wavelength                | 1.540562 Å                                       |                 |
| cryst. syst.              | Monoclinic                                       |                 |
| space group               | P 2 <sub>1</sub>                                 |                 |
| unit cell<br>dimensions   | length (Å)                                       | a = 12.0282(19) |
|                           |  | b = 9.0364(15)  |
|                           |  | c = 8.1578(11)  |
|                           | angle (deg.)                                     | β = 90.601(9)   |
| volume (Å <sup>3</sup> )  | 886.6(2)   |                 |
| Z(Z')                     | 2(1)   |                 |
| Dx (g cm <sup>-3</sup> )  | 1.185  |                 |
| Rp                        | 0.0315   |                 |
| Rwp                       | 0.0436   |                 |

**Table S4.** Inter-molecular H-bond distances and angles for anhydrous A (deduced from crystal structure reported in ref [10]).

| D   | H    | A   | D - H (Å) | H...A (Å) | D...A (Å) | D-H...A (deg.) | symmetry |
|-----|------|-----|-----------|-----------|-----------|----------------|----------|
| N1  | H1   | Cl2 | 0.910     | 2.24      | 3.056     | 149.0          | i        |
| C12 | H12B | Cl2 | 0.960     | 2.80      | 3.725     | 163            | ii       |
| C10 | H10  | Cl2 | 0.931     | 3.04      | 3.911     | 156.4          | i        |
| C11 | H11  | Cl2 | 0.981     | 2.99      | 3.936     | 162.3          | iii      |
| C14 | H14A | Cl2 | 0.969     | 3.04      | 3.984     | 165.1          | ii       |
| C17 | H17C | Cl1 | 0.960     | 3.17      | 4.087     | 161.6          | iv       |

(i) x-1/2, -y-1/2, z+1/2; (ii) x, y, z; (iii) x-1, y, z; (iv) -x, -y, -z.



**Fig. S3:** Crystal packing of racemic sibutramine. Hydrated form viewed along *a* (top left) and along *b* (bottom left), Anhydrous A viewed along *a* (top right) and along *c* (bottom right).