Electronic Supplementary Information

Novel Pharmaceutical Compositions through Co-crystallization of Racetams and Li⁺ Salts

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EXPERIMENTAL
All reagents and solvents were purchased from Acros Organics and used without further purification.

Synthesis
BRV₂·LiBr was obtained by recrystallization of a deliquescent powder obtained by grinding (in a mortar) of BRV (350 mg) and LiBr (71 mg) (2:1 ratio); the deliquescent powder was left at ambient temperature/humidity and crystals suitable for X-ray single crystal diffraction were obtained.

SEL₂·LiBr was obtained by recrystallization of a deliquescent powder obtained by grinding (in a mortar) of SEL (350 mg) and LiBr (65 mg) (2:1 ratio); the deliquescent powder was left at ambient temperature/humidity and crystals suitable for X-ray single crystal diffraction were obtained.

SEL·LiCl·2H₂O was obtained by recrystallization of a deliquescent powder obtained by grinding (in a mortar) of SEL (350 mg) and LiCl (64 mg) (1:1 ratio); the deliquescent powder was left at ambient temperature/humidity and crystals suitable for X-ray single crystal diffraction were obtained.

Crystals
Powders obtained for each co-crystal are rather hygroscopic. Crystals (Figure S1) were grown from a deliquescent powder obtained by grinding.

Figure S1. Single crystals grown for BRV₂·LiBr (a), SEL₂·LiBr (b) and SEL·LiCl·2H₂O (c).
**Structural determination**

**Single crystal data.** All crystal data were collected at room temperature on an Enraf–Nonius CAD4 diffractometer with Cu-Kα radiation, λ = 1.54181 Å and graphite monochromator. SHELX97ESI-1 was used for structure solution and refinement based on F². Non-hydrogen atoms were refined anisotropically. Hydrogen atoms were added in calculated positions. For structure BRV₂·LiBr two conformations of the lateral propyl chain were refined.

The program SchakalESI-2 was used for the graphical representation of the results. The program PLATONESI-3 was used to calculate hydrogen bond distances.

**References**


ESI-2  E. Keller, 1999, SCHAKAL99, Graphical Representation of Molecular Models; University of Freiburg, Germany.