CLAIMS

1. A crystalline solid form of Alpha-1062 gluconate (Form A), wherein said crystalline form has prominent peaks at 3.61, 10.98, 14.41 and 18.44 degrees 2-theta (± 0.2) in a powder X-ray diffraction pattern.

2. The crystalline solid form according to claim 1, wherein said crystalline form has one or more additional prominent peaks at 15.20, 17.31, 17.79, 22.77, 23.64, 24.88 and 34.31 degrees 2-theta (± 0.2) in a powder X-ray diffraction pattern.

3. The crystalline solid form according to any one of the preceding claims, wherein said crystalline form has at least five prominent peaks selected from the list consisting of 3.61, 10.98, 13.80, 14.41, 14.56, 15.08, 15.20, 17.02, 17.31, 17.79, 18.44, 19.24, 20.18, 20.91, 21.22 and 22.40 degrees 2-theta (± 0.2) in a powder X-ray diffraction pattern.

4. The crystalline solid form according to any one of the preceding claims, wherein said crystalline form has peaks at 7.25 and/or 12.67 degrees 2-theta (± 0.2) in a powder X-ray diffraction pattern.

5. The crystalline solid form according to any one of the preceding claims, wherein said crystalline form has at least three prominent peaks selected from the list consisting of 10.98, 14.41, 17.31, 18.44 and 22.40 degrees 2-theta (± 0.2).

6. The crystalline solid form according to claim 5, wherein said three peaks are within the five peaks with the highest relative intensity in a powder X-ray diffraction pattern obtained using analysis in transmission mode.

7. The crystalline solid form according to any one of the preceding claims, wherein said crystalline form has at least three peaks selected from the list consisting of 3.61, 7.25, 10.98, 14.56 and 22.40 degrees 2-theta (± 0.2).

8. The crystalline solid form according to claim 7, wherein said three peaks are within the five peaks with the highest relative intensity in a powder X-ray diffraction pattern obtained using analysis in reflectance mode.

9. The crystalline solid form according to any one of claims 1 to 6, wherein the peaks are determined using powder X-ray diffraction analysis in transmission mode.

10. The crystalline solid form according to any one of the preceding claims, wherein said crystalline form exhibits an onset of melting at a temperature of 116-120 °C when assessed using differential scanning calorimetry (DSC).

11. The crystalline solid form according to claim 10, wherein said crystalline form exhibits an onset of melting at a temperature of about 117 °C.

12. The crystalline solid form according to any one of the preceding claims, wherein said crystalline form exhibits a weight loss prior to the onset of melt using DSC of <0.5% when assessed using Thermo-Gravimetric Analysis (TGA).

13. The crystalline solid form according to claim 12, wherein said crystalline form exhibits a weight loss prior to the onset of melt using DSC of <0.3%, or <0.2%.

14. A preparation comprising the crystalline solid form (Form A) according to any one of the preceding claims, wherein said preparation is essentially free of, or comprises at negligible levels, one or more additional crystalline solid forms of Alpha-1062 gluconate (Forms B, C and/or D), wherein said additional crystalline solid forms are selected from the group consisting of:

    a. Form B, wherein said Form B has prominent peaks at 10.69, 17.17, 21.00 and 24.67 degrees 2-theta (± 0.2) in a powder X-ray diffraction pattern,

    b. Form C, wherein said Form C has prominent peaks at 3.90, 9.74, 10.35 and 21.43 degrees 2-theta (± 0.2) in a powder X-ray diffraction pattern, and

    c. Form D, wherein said Form D has prominent peaks at 3.76, 10.16, 14.77 and 19.03 degrees 2-theta (± 0.2) in a powder X-ray diffraction pattern.

15. A preparation comprising the crystalline solid form (Form A) according to any one of claims 1 to 13, wherein said preparation comprises additionally one or more of the additional crystalline solid forms of Alpha-1062 gluconate according to claim 9 (Forms B, C and/or D).

16. A pharmaceutical composition comprising the crystalline solid form according to any one of claims 1 to 13 (Form A) and/or the preparation according to claims 14 or 15, wherein said composition additionally comprises one or more pharmaceutically acceptable excipients.

17. The pharmaceutical composition according to claim 16, wherein the composition is packaged to reduce atmospheric moisture in contact with said composition.

18. The pharmaceutical composition according to claim 17, wherein the packaging is aluminium foil blister packaging (Alu-Alu), packaging with polymeric films with aluminium layers(s) and/or by using a desiccant.

19. The pharmaceutical composition according to any one of claims 16 to 18, wherein the composition is suitable for oral or transmucosal administration.

20. Use of the crystalline solid form according to any one of claims 1 to 13 (Form A), the preparation according to claims 14 or 15 and/or the pharmaceutical composition according to any one of claims 16 to 19, in the manufacture of a medicament for the treatment of a brain disease associated with cognitive impairment and/or with a cholinergic deficit.

21. The use according to claim 20, wherein the brain disease is selected from the group consisting of a brain disease with a cholinergic deficit, Alzheimer's disease, Parkinson's disease, dementia, schizophrenia, epilepsy, stroke, poliomyelitis, neuritis, myopathy, oxygen and nutrient deficiencies in the brain after hypoxia, anoxia,

asphyxia, cardiac arrest, chronic fatigue syndrome, poisoning, anaesthesia, spinal cord disorders, central inflammatory disorders, autism, Rett's syndrome, postoperative delirium, neuropathic pain, abuse of alcohol and drugs, addictive alcohol and/or nicotine craving, and effects of radiotherapy.

22. A method for preparing the crystalline solid form according to any one of claims 1 to 13, comprising contacting an Alpha-1062 gluconate salt with an organic solvent, forming a slurry and subsequently filtering and/or drying the slurry, obtaining a crystalline solid form.

23. The method according to claim 22, wherein the organic solvent is selected from the list consisting of methyl ethyl ketone (MEK), 1,4-dioxane (dioxane), ethyl acetate (EtOAc) and tetrahydrofuran (THF).