Claims

1. Method for producing a composition comprising archaeal lipids from a *Sulfolobus* cell culture, comprising
(1) growing a *Sulfolobus* cell culture at a temperature of 75 to 85°C and at a growth rate of 0.025 to 0.035 per hour and extracting the archaeal lipids from the archaeal culture so as to obtain a composition for use for oral retard therapy, or
(2) growing a *Sulfolobus* cell culture at a temperature of 75 to 85°C and at a growth rate of 0.005 to 0.015 per hour and extracting the archaeal lipids from the archaeal culture so as to obtain a composition for use for oral acute therapy.

2. Method according to claim 1, wherein the *Sulfolobus* cell culture is a culture of *Sulfolobus acidocaldarius* cells.

~~3. Method according to claim 1 or 2, wherein the composition for use for oral retard therapy comprises a ratio of dihexose-caldarchaeol (2Hex-Cal) to phosphatidyl inositol-archaeol (PI-Arc) of 1:5 to 1:7, especially of 1:5.5 to 1:6.5.~~

~~4. Method according to claim 1 or 2, wherein the composition for use for oral acute therapy comprises a ratio of dihexose-caldarchaeol (2Hex-Cal) to phosphatidyl inositol-archaeol (PI-Arc) of 1:2 to 1:4, especially of 1:2.5 to 1:3.5.~~

~~5~~3. Method according to ~~any one of claims 1 to 4~~claim 1 or 2, wherein the cells are homogenised after culturing, preferably via homogenization, especially high-pressure homogenization, or sonication.

~~6~~4. Method according to claim ~~5~~3, wherein the homogenised cells are mixed with a buffer, preferably with ammonium acetate buffer, especially with an ammonium acetate buffer having 100 to 200 mM ammonium acetate.

~~7~~5. Method according to any one of claims 1 to ~~6~~4, wherein the archaeal lipids are obtained by extraction from the aqueous phase comprising the cells and/or the homogenised cells into an organic phase, preferably by extraction into a chloroform/methanol

organic phase, and phase separation of the organic phase from the aqueous phase.

~~8~~6. Method according to claim ~~7~~5, wherein the archaeal lipids are obtained by evaporation of the organic phase, preferably by evaporation of the organic phase to dryness.

~~9~~7. Method according to any one of claims 1 to ~~8~~6, wherein the archaeal lipids obtained are combined with a pharmaceutically active drug, preferably in combination with a pharmaceutically acceptable carrier, so as to obtain a composition comprising archaeal lipids and the pharmaceutically active drug.

~~10~~8. Method according to any one of claims 1 to ~~9~~7, wherein the archaeal lipids are obtained by supercritical fluid extraction, especially extraction with supercritical CO_2.

~~11~~9. Composition comprising archaeal lipids obtainable by a method according to any one of claims 1 to ~~10~~8.

~~12. Composition comprising archaeal lipids, preferably according to claim 11, wherein the composition comprises a ratio of dihexose-caldarchaeol (2Hex-Cal) to phosphatidyl inositol-archaeol (PI-Arc) of 1:5 to 1:7 or of 1:2 to 1:4.~~

~~13. Composition according to claim 11 or 12, further comprising a drug, preferably a drug for human medical use, especially a drug which is subject to an authorization to place the product on the market as a medicinal product issued in the EU or in the US.~~

~~14~~10. Composition according to ~~any one of claims 11 to 13~~claim 9, wherein ~~the~~ an archaeosome~~s~~ comprise~~s~~ at least 5 % w/w, preferably at least 10 % w/w, PI-Arc and at least 50 % w/w 2Hex-Cal (% w/w as % w/w of total lipid).