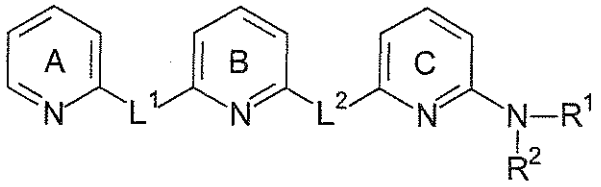
2,6-Diaminopyridine compounds suitable for treating diseases associated with amyloid or amyloid-like proteins or for treating or preventing ocular diseases or conditions associated with a pathological abnormality/change in the tissue of the visual system

Summary of the invention

In one aspect, there is provided a compound having the general formula (I)



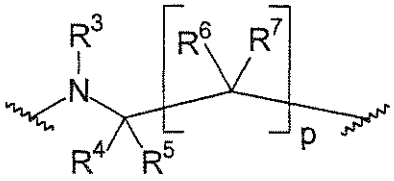
(I)

wherein

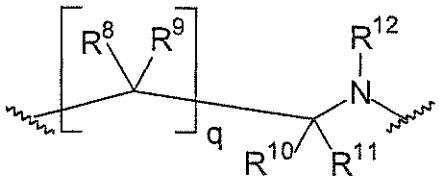
the pyridine rings A, B and C are independently unsubstituted or substituted by one or more substituents which are independently selected from the group consisting of:

C_{1-6}-alkyl, haloalkyl having 1 to 6 carbon atoms, Hal or OR^{13};

L^1 and L^2 are independently selected from moieties having the formula (a) or (b)



(a)



(b)

wherein at least one of L^1 or L^2 has the formula (b);

R^1 and R^2 are independently selected from the group consisting of hydrogen, C_{1-6}-alkyl, and phenyl;

R^3 is selected from hydrogen and C_{1-6}-alkyl;

R^4, R^5, R^6 and R^7, are independently selected from the group consisting of hydrogen and C_{1-6}-alkyl;

R^8, R^9, R^{10}, and R^{11} are independently selected from the group consisting of hydrogen, C_{1-6}-alkyl;

R^{12} is selected from the group consisting of hydrogen and C_{1-6}-alkyl;

R^{13} is independently selected from hydrogen, C_{1-6}-alkyl and phenyl;

p is 1 or 2;

q is 0, 1 or 2; and

Hal is selected from the group consisting of F, Cl, Br, and I;

or a pharmaceutically acceptable salt thereof.

Disclosed are~~The present invention relates to~~ novel compounds that can be employed in the treatment of a group of disorders and abnormalities associated with amyloid protein, particularly ocular disorders such as glaucoma or Aged-related Macular Degeneration (AMD), and of diseases or conditions associated with amyloid-like proteins. The present disclosure~~invention~~ further relates to pharmaceutical compositions comprising these compounds and to the use of these compounds for the preparation of medicaments for the treatment of diseases or conditions associated with amyloid or amyloid-like proteins. A method of treating diseases or conditions associated with amyloid or amyloid-like proteins is also disclosed.

In another aspect, there is provided a pharmaceutical composition comprising a compound as defined above.

In yet another aspect, there is provided the use of the compound as defined above for the preparation of a medicament for treating or preventing a disease or condition associated with an amyloid and/or amyloid-like protein, where the disease or condition is an ocular disease or condition, preferably wherein the disease is glaucoma, in particular chronic (idiopathic) open-angle glaucoma, pupillary block glaucoma, developmental glaucoma, glaucoma associated with other ocular disorders, glaucoma associated with elevated episcleral venous pressure, glaucoma associated with inflammation and trauma, glaucoma following intraocular surgery, high-pressure glaucoma, normal-pressure glaucoma, acute angle-closure glaucoma, subacute angle-closure glaucoma, chronic angle-closure glaucoma, combined mechanism glaucoma, congenital (infantile) glaucoma, juvenile glaucoma aniridia, glaucoma associated with disorders of the corneal endothelium, glaucoma associated with disorders of the iris and ciliary body, glaucoma associated with disorders of the lens, glaucoma associated with disorders of the retina, choroid, and vitreous, glaucoma associated with retinal detachment and vitreoretinal abnormalities, neovascular glaucoma, pigmentary glaucoma, exfoliation syndrome, lens-induced open-angle glaucoma, glaucoma associated with lens intumescence and dislocation, glaucoma associated with keratitis, episcleritis, and scleritis, ciliary block (malignant) glaucoma, glaucoma in aphakia and pseudophakia, epithelial, fibrous, and endothelial proliferation, glaucoma associated with corneal surgery, and glaucoma associated with vitreoretinal surgery.

In yet another aspect, there is provided the compound as defined above for treating or preventing a disease or condition associated with an amyloid and/or amyloid-like protein, wherein the disease or condition is an ocular disease or condition, preferably wherein the disease is glaucoma, in particular chronic (idiopathic) open-angle glaucoma, pupillary block glaucoma, developmental glaucoma, glaucoma associated with other ocular disorders, glaucoma associated with elevated episcleral venous pressure, glaucoma associated with inflammation and trauma, glaucoma following intraocular surgery, high-pressure glaucoma, normal-pressure glaucoma, acute angle-closure glaucoma, subacute angle-closure glaucoma, chronic angle-closure glaucoma, combined mechanism glaucoma, congenital (infantile) glaucoma, juvenile glaucoma aniridia, glaucoma associated with disorders of the corneal endothelium, glaucoma associated with disorders of the iris and ciliary body, glaucoma associated with disorders of the lens, glaucoma associated with disorders of the retina, choroid, and vitreous, glaucoma associated with retinal detachment and vitreoretinal abnormalities, neovascular glaucoma, pigmentary glaucoma, exfoliation syndrome, lens-induced open-angle glaucoma, glaucoma associated with lens intumescence and dislocation, glaucoma associated with keratitis, episcleritis, and scleritis, ciliary block (malignant) glaucoma, glaucoma in aphakia and pseudophakia, epithelial, fibrous, and endothelial proliferation, glaucoma associated with corneal surgery, and glaucoma associated with vitreoretinal surgery.

In another aspect, there is provided a mixture comprising a compound as defined above and optionally at least one further biologically active compound and/or a pharmaceutically acceptable carrier and/or a diluent and/or an excipient.

In another aspect, there is provided the use of the compound as defined above for the preparation of a medicament for treating or preventing an ocular disease or condition associated with a pathological abnormality/change in the tissue of the visual system, particularly associated with an amyloid-beta-related pathological abnormality/change in the tissue of the visual system, wherein the ocular disease or condition is preferably selected from the group consisting of glaucoma, neuronal degradation, cortical visual deficits, cataract due to beta-amyloid deposition, ocular amyloidoses, primary retinal degeneration, macular degeneration, for example age-related macular degeneration, optic nerve drusen, optic neuropathy, optic neuritis, and lattice dystrophy.

In another aspect, there is provided a compound as defined above for treating or preventing an ocular disease or conditions associated with a pathological abnormality/change in the tissue of the visual system, particularly associated with an amyloid-beta-related pathological abnormality/change in the tissue of the visual system, wherein the ocular disease or condition is preferably selected from the group consisting of glaucoma, neuronal degradation, cortical visual deficits, cataract due to beta-amyloid deposition, ocular amyloidoses, primary retinal degeneration, macular degeneration, for example age-related macular degeneration, optic nerve drusen, optic neuropathy, optic neuritis, and lattice dystrophy.

The compounds of the present disclosure~~invention~~ can also be used in the treatment or prevention of ocular diseases associated with pathological abnormalities/changes in the tissues of the visual system, particularly associated with amyloid-beta-related pathological abnormalities/changes in the tissues of the visual system, such as neuronal degradation. Said pathological abnormalities may occur, for example, in different tissues of the eye, such as the visual cortex leading to cortical visual deficits; the anterior chamber and the optic nerve leading to glaucoma; the lens leading to cataract due to beta-amyloid deposition; the vitreous leading to ocular amyloidoses; the retina leading to primary retinal degeneration and macular degeneration, for example age-

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R^{12} is selected from the group consisting of hydrogen and C_{1-6}-alkyl;

R^{13} is independently selected from hydrogen, C_{1-6}-alkyl and phenyl;