APOTRANSFERRIN TO TREAT STROKE

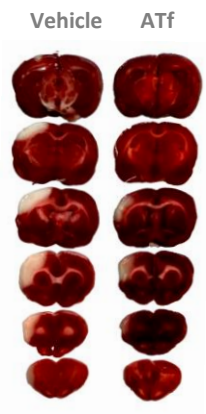
TECHNOLOGY APPROACH

This invention utilizes intravenous apotransferrin to prevent damage induced by permanent and also transient ischemic stroke.

BACKGROUND

Every year, 15 million new stroke cases occur worldwide (source: WHO). Despite our present knowledge of the pathophysiology of brain ischemic events, stroke continues to be one of the leading causes of death and disability because we do not have effective therapies. Current stroke treatments are based on thrombus removal and these can be only prescribed for fewer than 20% of stroke patients. Effective stroke therapy therefore continues to be a desperate need and accordingly, ther exists a great opportunity to develop successful therapeutic strategies.

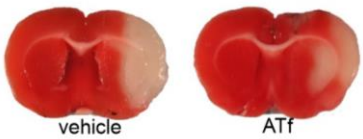
OUR RESULTS UP TO DAY



Our group has demonstrated that intravenous administration of apotransferrin sharply reduces brain damage (up to 75%) in 3 different rat models, including both transient and permanent ischemic stroke; it also improves the neurological impairment (neuroscore 60%) induced by stroke. Thus, this new approach may benefit not only stroke patients, who can be treated with current treatment to induce recanalization (transient stroke), but also the 80% of patients who cannot benefit from current therapies directed at inducing recanalization of the artery (permanent strokes).

The mechanism involved in protection by apotransferrin is diferent from those previously targeted in stroke.

Complete results upon CDA signature.



ADVANTAGES

- **Identified mechanism of action.**
- Apotransferrin is an **endogenous protein** used **at physiological levels to treat stroke; this minimizes the** risk of generating adverse reactions.
- Apotransferrin has been used for the treatment of patients on myeloablative therapy and **shows good safety and tolerability data.** Apotransferrin might be potentially used in both ischemic and haemorrhagic stroke.
- Apotransferrin administration is also **beneficial in the absence of reperfusion** or restoration of the blood flow. It provides an **option for patients** that cannot be treated with current strategies directed at recanalization of the artery occluded.
- Apotransferrin can be **administered at the same time as** a thrombolytic agent and/or during surgical intervention to remove the thrombus.

APOTRANSFERRIN TO TREAT STROKE

INTELLECTUAL PROPERTY

PCT/EP2012/072195
Apotransferrin for the treatment of brain stroke.
Priority date: 11th November 2011

LOOKING FOR
- Licensing Out
- Investment
- Co-development
- Spin-Off

PRODUCT PROFILE

Category	Target Product Profile
Clinical Indication	Ischemic Stroke (transient and permament)
Mechanism of action	Prevents prooxidant events during stroke
Efficacy	Reduces stroke-induced brain damage (up to 75%) in 3 different rat models of transient or permanent ischemic stroke and improves the neurological impairment (neuroscore 60%)
Safety	Has been used for the treatment of patients with myeloablative therapy **showing good safety and tolerability data**

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CLAIMS AND EVIDENCE

1.Iron overload is damaging for stroke patients (either having ischemia or hemorrhage). Millan, M., Sobrino, T., Castellanos, M., Nombela, F., Arenillas, J.F., Riva, E., Cristobo, I., Garcia, M.M., Vivancos, J., Serena, J., et al. 2007. Increased body iron stores are associated with poor outcome after thrombolytic treatment in acute stroke. *Stroke* 38:90-95./ Pérez de la Ossa N, Sobrino T, Silva Y, Blanco M, Millán M, Gomis M, Agulla J, Araya P, Reverté S, Serena J, Dávalos A. 2010; Iron-related brain damage in patients with intracerebral hemorrhage. Stroke. 41:810-813.

2.Iron overload increases stroke damage in experimental models of stroke in rodents. Castellanos, M., Puig, N., Carbonell, T., Castillo, J., Martinez, J., Rama, R., and Davalos, A. 2002. Iron intake increases infarct volume after permanent middle cerebral artery occlusion in rats. *Brain Res* 952:1-6.

3.Apotransferrin, at the levels used in the present therapy, is safe. Parkkinen J, Sahlstedt L, von Bonsdorff L, Salo H, Ebeling F, Ruutu T. 2006. Effect of repeated apotransferrin administrations on serum iron parameters in patients undergoing myeloablative conditioning and allogeneic stem cell transplantation. Br J Haematol.135(2):228-34.

4.Receptor-mediated transferrin brain uptake remains functional for several hours after onset of ischemia. Hao J1, Bickel U. 2013. Transferrin receptor mediated brain uptake during ischemia and reperfusion. J Pharm Pharm Sci. 16(4):541-50.

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