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Targeting nitric oxide-cGMP signaling: Therapeutic potential in POAG

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Glaucoma is a progressive optic neuropathy characterized by visual field defects that ultimately leads to irreversible blindness. By the year 2020, an estimated 80 million people will have glaucoma, 11 million of which will be bilaterally blind. Primary open-angle glaucoma (POAG) is the most common type of glaucoma. Elevated intraocular pressure (IOP) is currently the only risk factor amenable to treatment. How IOP is regulated and can be modulated remains a topic of active investigation. Available therapies mostly geared towards lowering IOP, offer incomplete protection, highlighting the need for novel therapeutic approaches and drug targets. Impairment of the nitric oxide (NO)-soluble guanylatecyclase (sGC)-cyclic guanosine monophosphate (cGMP) pathway has been associated with POAG and NO-donors are being developed as novel IOP-lowering agents. This presentation will discuss pre-clinical and clinical studies, illustrating the connection between NO-cGMP signaling and POAG. In addition, pilot data will be presented describing the IOP lowering and/or neuroprotective capabilities of available therapeutics known to increase cGMP signaling.

Biography

Emmanuel S Buys obtained his PhD from the Department of Molecular Biology, Gent University and Flanders Institute of Biotechnology. He is currently an Assistant Professor in Anesthesia at the Massachusetts General Hospital where he studies the role of nitric oxide-cGMP signaling in cardiovascular disease and primary open angle glaucoma. He has co-authored 52 manuscripts since 2006.

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