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Book 5. The periodic table and new elements.

Medical chemistry: fundamental and applied aspects.

Book 5 consists of Plenary, Keynote, Invited lectures, Oral, Poster presentations, Correspondence reports of the "The periodic table and new elements", "Medical chemistry: fundamental and applied aspects", index, advertisements of partners and sponsors.

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## SYNTHESIS AND BIOLOGICAL ACTIVITY OF NOVEL 2-OXINDOLE DERIVATIVES

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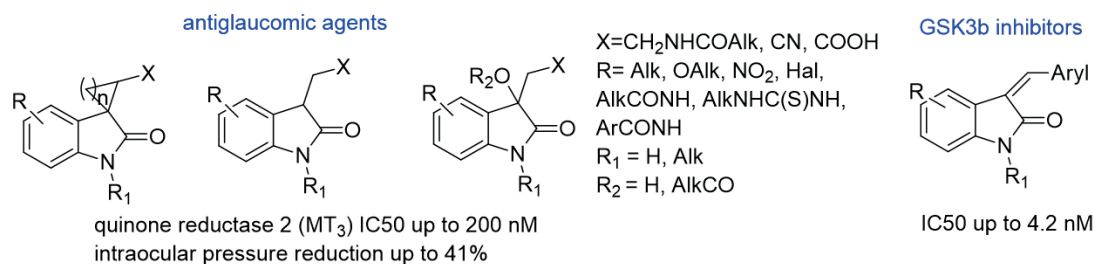
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New substituted oxindoles were synthesized using condensation of isatin and 2-indolinone derivatives with appropriate compounds followed by additional modifications<sup>1-5</sup>. The binding affinity to new molecular targets such as quinone reductase 2 (QR2, proposal MT3 receptor),<sup>1,4</sup> kinase-3 $\beta$  glycogen synthase (GSK3 $\beta$ )<sup>5</sup> and  $\alpha$ -glucosidase was investigated *in vitro* for oxindole derivatives. The pronounced long-lasting ability of oxindole-based QR2 ligands to reduce the intraocular pressure (IOP) was found *in vivo* in normotensive rabbits. The effective GSK3 $\beta$  and  $\alpha$ -glucosidase inhibitors exhibit prominent anti-hyperglycemic activity in diabetic insulin-resistant rats *in vivo* (glucose-tolerant test).<sup>5</sup> The found lead compounds can be used as potential therapeutic agents for type 2 diabetes mellitus and glaucoma treatment.



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