Review article

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POTENTIAL DUAL MECHANISM OF HYPOURICEMIC ACTIVITY OF DPP-4 INHIBITORS WITH PURINE-BASED SCAFFOLD

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Dipeptidyl peptidase-4 (DPP-4) binds to adenosine deaminase (ADA) and form a com-plex which catalyzes an irreversible deamination of extracellular adenosine to inosine, what leads to the generation of hypoxanthine, xanthine and finally uric acid by xanthine oxidase (XO) in purine catabolism with the production of reactive oxygen species. Xanthine-based DPP-4 inhibitor linagliptin showed inhibitory potential on XO. It exerts a hypouricemic effect by inhibiting DPP-4 activity and its binding to ADA, what causes the increase of adenosine and decrease of XO substrates levels, as well as by inhibiting XO activity. Based on the evidenced dual mechanism of hypouricemic activity of linagliptin, the possibility of other DPP-4 inhibitors with the purine-based scaffold to act in the same manner exists.

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