

## 1,3-DISUBSTITUTED BENZIMIDAZOL-2-ONE DERIVATIVE AS A DIPEPTIDYL PEPTIDASE-4 INHIBITOR

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The benzimidazole core is a valuable moiety among biologically active compounds, providing a synthetically tractable drug-like scaffold. Some benzimidazole derivatives with inhibitory potential against multifunctional aminopeptidase dipeptidyl peptidase-4 (DPP-4), a promising therapeutic target for type 2 diabetes, have been reported so far. After studying DPP-4 inhibitors with 1,3-disubstituted-benzimidazol-2-imine scaffold, the inhibitory activity of 1,3-disubstituted benzimidazol-2-one derivatives against DPP-4 was evaluated here. 5-Methyl-1,3-bis(2-oxo-2-phenylethyl)-1,3-dihydro-2H-benzimidazol-2-one (compound **5**) inhibited this protease with IC<sub>50</sub> value about 200 µM. Although not as potent an inhibitor, compound **5** might contribute to further design and optimizations of benzimidazole based DPP-4 inhibitors.

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**Key words:** dipeptidyl peptidase-4, benzimidazole, DPP-4 inhibitors