Two types of Scutellarein and Tertramethylpyrazine hybrid molecules were designed and synthesized according to the PepT 1-based design. After systematic research, all synthesized hybrid molecules exhibited more excellent neuroprotective effect and antiplatelet activity compared to the original drugs. Among them, the selected compound 1e with superior neuroprotective and antiplatelet effects could significantly enhance the permeability on the Caco-2 monolayer membrane and inhibit the Gly-Sar uptake on Caco-2 cells. Meanwhile, the result of intestinal perfusion has also confirmed that the absorption of the selected compound 1e is indeed increased. Further, the selected compound 1e significantly reduce the cerebral infarction volume of middle cerebral artery occlusion/reperfusion rats. Especially, the cerebral infarction volume of the high-dose 1e group reduced to one fourth of the model group. Meanwhile, results of hematoxylin-eosin staining also indicated that the damage in the hippocampus CA1 region was significantly alleviated after treatment with the compound 1e. Accordingly, molecular hybridization strategy is one of the simple and feasible ways to improve the therapeutic effect of single targeted drug [1)]

1)
Dong Y, Wang F, Wen J, Mao Y, Zhang S, Long T, Yang Z, Li L, Zhang J, Dong L, Liu G, Xu J. Synthesis and bioevaluation of Scutellarein-Tertramethylpyrazine hybrid molecules for the treatment of ischemic stroke. Bioorg Chem. 2023 Nov 17;142:106978. doi: 10.1016/j.bioorg.2023.106978. Epub ahead of print. PMID: 37984102.