

Differential stimulation of the GTPase activity of G-proteins by polylysine

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Polylysine, polyornithine and, to a lesser extent, polyarginine were found to stimulate the GTPase activity of the purified recombinant α subunit of the human Gi-3 transducing protein α i-3. Optimal stimulation of 4- to 5-fold was obtained with polylysine concentrations between 1 and 20 μ M, higher concentrations being inhibitory. Polylysine at similar concentrations stimulated by 50% the GTPase of transducin (gt), the vision transducing protein, but had only a very slight effect on the GTPase of the p21 product of the H-ras protooncogene. The stimulation of the α i-3 GTPase caused by polylysine was due to a reduction of the apparent K_m for GTP from 3.8 to 1.3 μ M. The stimulation by polylysine was observed at free Mg^{2+} concentrations below 1 μ M. These results indicate that polylysine acts in a fashion similar to mastoparan and substance P in mimicking the action of an agonist-bound receptor on G-proteins. © 1992.