was reversed by inhibition of protein kinase A activity, while homologous desensitization was not affected by the protein kinase A inhibitor. On the other hand, β adrenergic receptor system underwent only homologous desensitization, which also was not affected by the protein kinase A inhibitor.

Conclusively, SK-N-MC cells express AC type VI and VII, which couple to both D1 dopamine receptor and β adrenergic receptor, but D1 dopamine receptor rather than β adrenergic receptor seems to couple dominantly to AC type VI.

The effect of palytoxin in cultured porcine adrenal medullary cells

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1. The effect of palytoxin (PTX) was studied in cultured porcine adrenal medullary cells with whole-cell voltage clamp techniques and measurement of intracellular Na^+ concentration ($[Na^+]_i$).

2. At a holding potential of -70 mV, PTX caused dose-dependent increases (0.1–100 nM) in inward currents and $[Na^+]_i$.

3. PTX-induced inward current was inhibited by the replacement of extracellular Na^+ with Cs^+, Li^+ or $Tris^+$. The order of inhibitory potency was $Tris^+ \gg Li^+ > Cs^+$. In Na^+, Cs^+ or Li^+ solution, the voltage-current relationship was linear and the reversal potential was about 0 mV. On the other hand, in $Tris^+$ solution, the voltage-current relationship showed the outward rectification and the reversal potential was about -30 mV.

4. In the absence of extracellular Ca^{2+} or in the presence of Ca^{2+} together with Mn^{2+} (2.5 mM), PTX (10 nM) failed to evoke an inward current. Mn^{2+} slightly inhibited inward currents which were induced by PTX.

5. In the pretreatment with ouabain (0.1 mM), an inhibitor of Na^+, K^+-ATPase, PTX did not induce any inward currents. Ouabain had no effect on inward currents which PTX had induced. Amiloride, an inhibitor of Na^+/H^+ exchanger, inhibited PTX-induced inward current in a dose-dependent manner (0.01–1 mM).

6. The amplitude of PTX-induced inward current was increased by intracellular adenine nucleotide. The order of potency was ATP$\fallingdotseq$ADP$>$no adenine nucleotide$\fallingdotseq\beta,\gamma$-methyleneadenosine-5'-triphosphate.

7. The developing rate of PTX-induced inward current was increased by the flash photolysis of caged-ATP.

8. These results suggest that PTX induces non-selective monovalent cation channels by causing conformational changes in Na^+, K^+-ATPase at some states which depend on intracellular ATP or ADP in cultured porcine adrenal medullary cells.