

# ACh and ATP mediate excitatory transmission in cat carotid identified chemoreceptor units in vitro

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Several molecules have been proposed as excitatory transmitters between glomus (type 1) cells and nerve terminals of petrosal ganglion (PG) neurons in the carotid body (CB). We tested whether ACh and ATP have a role to play as excitatory transmitters in the cat CB by recording intracellularly from identified PG neurons functionally connected to the CB in vitro. PG neurons projecting to the CB were classified according to their intracellular responses as: (a) neurons with humped action potentials (hAP neurons) responding phasically to long-lasting depolarizing pulses (53/67), and (b) neurons with smooth action potentials (non-hAP neurons) that fire tonically during long-lasting depolarizations (14/67). CB stimulation by stop flow and/or acidosis induced activity in 28 of 39 hAP-type neurons, being classified as chemosensory, but in none of the non-hAP neurons. Hexamethonium (10  $\mu$ M) and suramin (100  $\mu$ M) reversibly abolished the increased discharges evoked in chemosensory neurons (8/9) by