Table 1 Inhibition of histamine release from rat mast cells

		ID_{50} μg/ml			
Histamine liberator	*(μg/ml)*	*Indomethacin*	*Meclofenamate*	*PPP*	*PGE_2*
Compound 48/80	(0.16)	21.5	3.5	0.7	16.0
Phospholipase-A	(5.0)	13.5	2.0	—	—
Adenosine triphosphate	(200)	10.0	3.0	2.5	7.0
Antigen-egg albumen	(1000)	13.0	6.5	12.0	10.5

The concentration of inhibitor giving 50% reduction of histamine release (ID_{50}), following 5 min pre-incubation with mast cells, was determined from at least 5 experiments. Control histamine release, with the concentration of each liberator shown, was 30–40% of total histamine content of the cells.

was 0.5 μg/ml). In contrast, the anti-inflammatory steroid, betamethasone (100 μg/ml), only slightly inhibited (18–25%) antigen- or 48/80-induced histamine release. Polyphloretin phosphate also reduced histamine release (Table 1) but was more potent than di-4-phloretin phosphate (ID_{50} against 48/80-induced release was 0.7 and 3.3 μg/ml respectively), unlike the relative potency of these compounds as either prostaglandin antagonists or as inhibitors of prostaglandin inactivation (Crutchley & Piper, 1974). Prostaglandin E_2 (PGE_2) reduced histamine release stimulated by the various liberators shown (Table 1) but exhibited a shallow dose-inhibition relationship; PGE_2 or its (15S)-15 methyl analogue (1 μg/ml) inhibited antigen-induced release by 20–30%.

These observations that non-steroid anti-inflammatory drugs inhibit histamine release supports the finding that indomethacin reduces mast cell degranulation (Taylor, Francis, Sheldon & Roitt, 1974). The mechanism underlying this inhibitory activity is not yet known, but may involve effects on cyclic AMP levels via phosphodiesterase inhibition, on membrane stability or on calcium-ion mobilization. Thus, assessment of a role for endogenous prostaglandins in mast cells is made difficult by these possible actions of aspirin-like drugs. However, the ability of prostaglandins to reduce mast cell histamine release could reflect a patho-physiological modulator role during anaphylaxis.

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Steroid hormone receptors in brain and pituitary

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