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MRGPRX2-dependent feedback loops amplify neuroinflammation pathology

The diagram illustrates the following components and interactions:

- Mast Cell:** Releases MC Mediators and Neuropeptides. Undergoes Mast Cell Degranulation.
- Sensory Neuron:** Releases Neuropeptides and Inflammatory Mediators. Undergoes Sensory Neuron Activation.
- MRGPRX2:** Receptor on both Mast Cell and Sensory Neuron. Activated by Tissue Damage, Tissue Pathophysiology, and various ligands.
- Ligands:**
 - MRGPRX2 Ligands:** Released from Tissue Damage.
 - Neuropeptides:** Released from Sensory Neuron. Includes: Calcitonin Receptor-Like Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR).
 - Protein/Peptide Fragments:** Includes: Calcitonin Receptor-Like Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR).
 - Peptide hormones:** Includes: Calcitonin Receptor-Like Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR).
 - Antimicrobial Peptides:** Includes: Calcitonin Receptor-Like Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR).
 - Other endogenous ligands:** Includes: Calcitonin Receptor-Like Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR).
- Outcomes:** Mast Cell Degranulation, Sensory Neuron Activation, Vasodilation, Extravasation, Immune Recruitment / Activation.

Tissue Pathophysiology	Neuroinflammation	Inflammatory Effects	Increased MC Numbers	Immune Inflammation	Adaptive Immunity	Tissue Remodeling	Vascular Leak
Itch / Pain / Cough	Chronic Inflammation	Erythema	Hives	Barrier Dysfunction	Airflow Limitation	Edema	Sensitivity to Chemicals/Foods

A promiscuous receptor activated by multiple ligands

The diagram shows the MRGPRX2 receptor on a cell membrane, activated by various ligands:

- Neuropeptides:** Calcitonin Receptor-Like Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR).
- Protein/Peptide Fragments:** Calcitonin Receptor-Like Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR).
- Peptide hormones:** Calcitonin Receptor-Like Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR).
- Antimicrobial Peptides:** Calcitonin Receptor-Like Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR).
- Other endogenous ligands:** Calcitonin Receptor-Like Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR), Calcitonin Receptor-Like Receptor Receptor (CRLR).

Mast Cell **Sensory Neuron**

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