IRL201104, A Novel Immunomodulatory Peptide, Shows A Long Lasting Reduction In Anaphylaxis Symptoms And Allergy Biomarkers In A Murine Model Of Food Allergy

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Rationale: Despite the considerable social, medical, and economic impact of food allergy, there is currently a clear lack of therapeutic options to treat this disease. IRL201104 is a novel clinical stage immunomodulatory peptide that despite a very short half-life (~10-15min across species), shows a long-lasting effect in different models of allergic inflammation. Our aim was to explore the therapeutic potential of IRL201104 in a model of food allergy driven by ovalbumin (OVA).

Methods: OVA sensitised mice were challenged via oral gavage with OVA on days 14, 16, 18, 21, 23, 25 and 28. IRL201104 (80-160μg/kg) was administered intravenously on challenge days either prophylactically (14-25) or therapeutically (21-25). In a second study, IRL201104 (80-800μg/kg) was dosed days 14-25 and after the day 28 challenge, animals were left for a further 10 days and then rechallenged at day 38 without any further IRL201104 dosing. After each challenge, temperature and anaphylaxis symptoms were recorded and 1hr after the final OVA challenge (days 28 or 38), serum levels of OVA specific IgE, mMCP1 and cytokines/chemokines were measured.

Results: At day 28, IRL201104, prophylactically and therapeutically dosed, markedly reduced both the temperature drop and anaphylaxis symptoms associated with OVA challenge as well as serum OVA specific IgE, m-MCP-1, IL-4, IL-5, IL-13 and eotaxin levels. These effects were maintained, even when mice were challenged again at day 38, 13 days after the compound's last dose.

Conclusions: This study highlight the great potential of IRL201104 as an alternative non-allergen specific therapy for the treatment of food allergy.