OVA Sensitization Model of Asthma in BALB/cJ Mice

Asthma is a chronic respiratory disease characterized by bronchial inflammation and airway hyper-responsiveness. To help researchers evaluate experimental therapies, we offer the mouse ovalbumin (OVA) sensitization model of asthma. This model is widely used and well characterized with features similar to those seen in human allergic asthma[1].

Methods

- BALB/cJ (stock number 000651) female mice six to eight weeks of age
- One week acclimation
- Mice injected IP with 20mg/mouse OVA in 2mg Aluminum hydroxide (Alum)
- 14 days later second IP injection (20mg/mouse OVA in 2mg Alum)
- On days 28, 29 and 30 exposure to nebulizer 1% OVA in PBS for 20 minutes each day
- Day 32 mice placed into Buxco Whole Body Plethysmograph and exposed to rising concentration of nebulized Methacholine

Experimental Timeline

|		IP injection with OVA in Alum	Second IP OVA injection	OVA sensitization via nebulizer	Methacholine challenge in Buxco	Study termination
Days	-7	1	14	28,29,30	32	
	Acclimation	Dosing can begin now or just before Methacholine challenge			Penh measurement	Sample collection for broncho-alveolar lavage fluid analysis & histopath

Treatment Regimes

- Single dose prior to Methacholine
  - Eg Salbutamol, shows immediate efficacy against hyper-responsivity, mimicking acute treatment.
- Multiple doses during sensitization/challenge period
  - Eg Corticosteroids, shows prophylactic effects on inflammatory component.

Effect of Salbutamol on Enhanced Pause (Penh) in OVA Sensitized BALB/cJ Mice
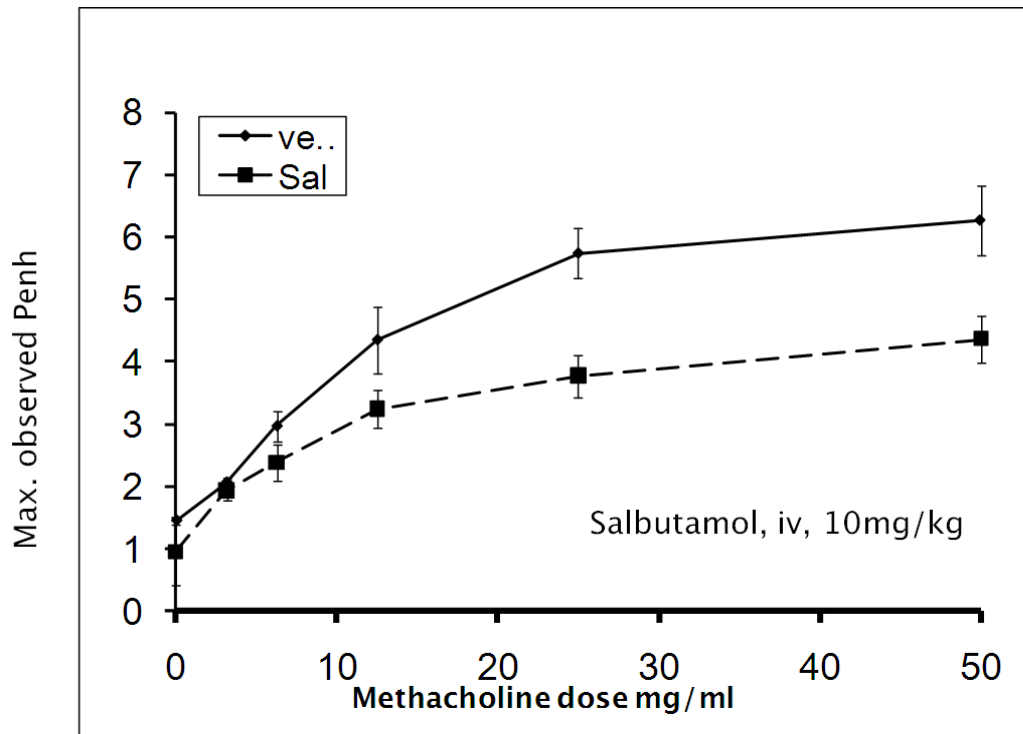
Conclusions

- Robust disease induction in BALB/cJ mice
- Improvement of the phenotype by Salbutamol
- Highly reproducible model

Reference

1. Kumar RK, Herbert C, Foster PS. 2008. *Curr Drug Targets*. 9: 503-510.