

# Murine Models of Allergic Asthma: OVA & HDM

Allergic Asthma is a complex, chronic inflammatory condition of the respiratory tract affecting approximately 300 million people worldwide, and is characterized by increased airway inflammation, airway hyper-reactivity, reversible airway obstruction and subsequent airway tissue remodeling. To properly recapitulate this inflammatory condition, MLM Medical Labs has validated two commonly-utilized rodent sensitization/challenge models: the Ovalbumin-induced model (OVA) and the House Dust Mite-induced model (HDM). Both models are frequently employed to assess therapeutics with potential indications in airway and/or pulmonary inflammation driven primarily by repeated exposure to allergens. The OVA and HDM methods are both well-characterized, providing a disease course demonstrating increased Th2 cytokine induction, IgE generation and eosinophilic infiltration to the lungs, however the HDM model may offer a more naturally-occurring allergen of the coagulation cascade in a cost-effective manner and is readily customizable.

## Experimental Overview

Both methods employ an allergen sensitization via IP or SC injection, followed by subsequent intranasal challenge.

Species Availability: Balb/c Mouse

Study Duration: 25 -28 Days

Number/group: Variable

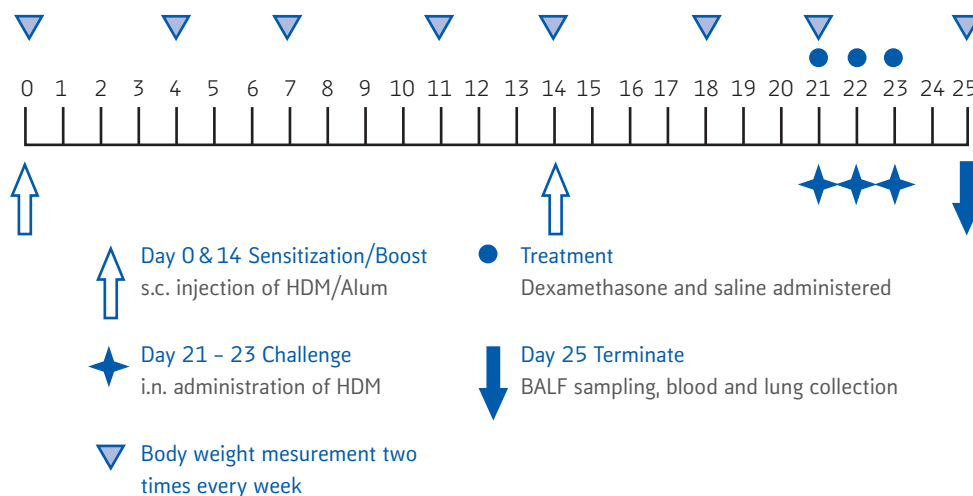
Activators: Ovalbumin/alum emulsion  
HDM Extract/alum emulsion

Positive Controls: Dexamethasone

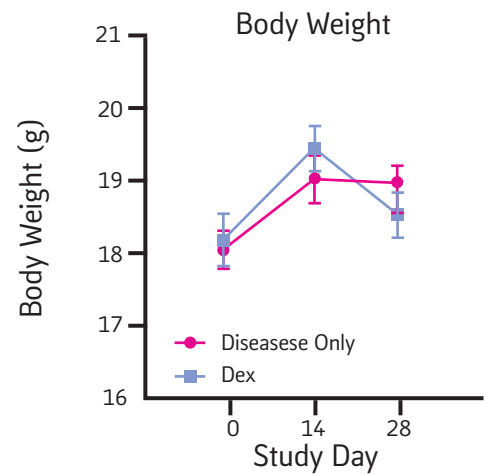
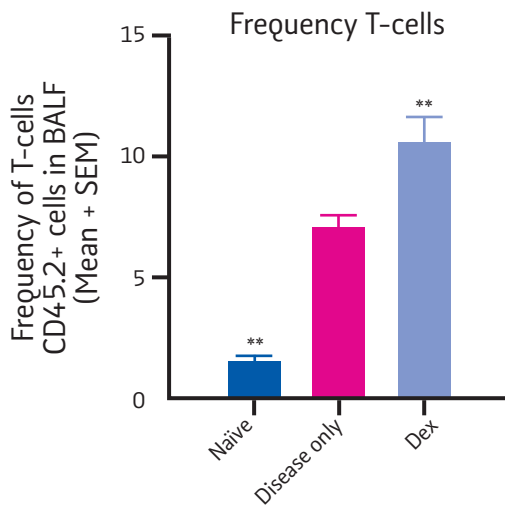
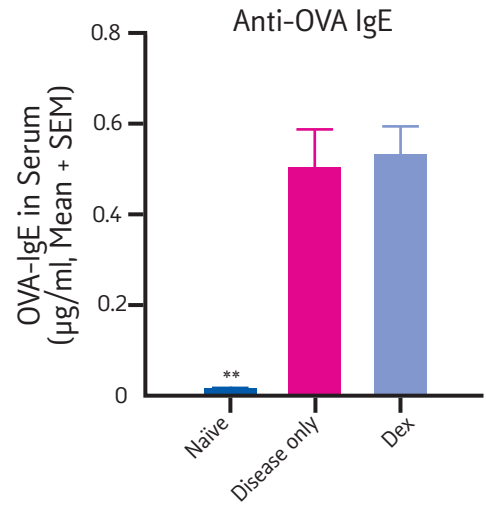
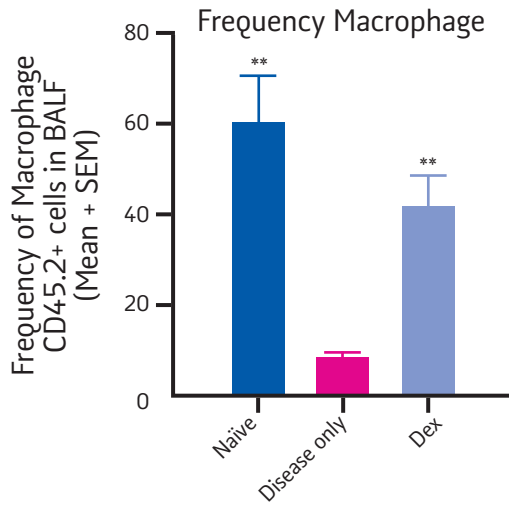
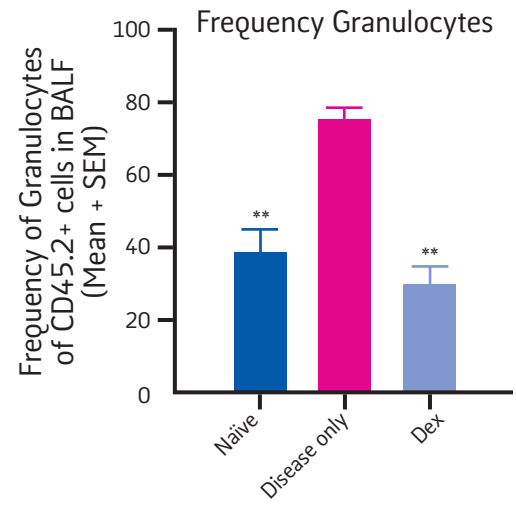
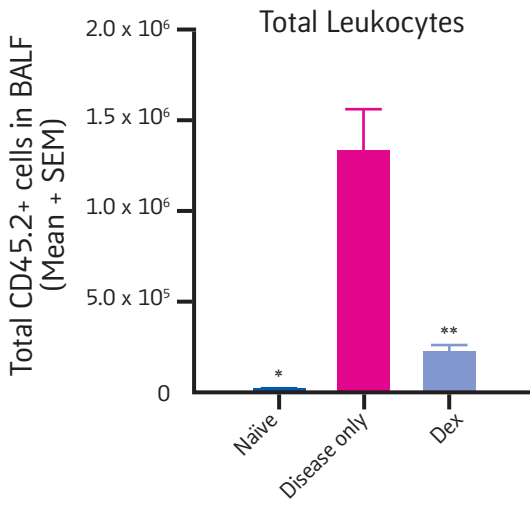
Standard Readouts: Cellularity (BALF)  
Cytokine Analysis (BALF)  
Body Weight

Add-on Readouts: Cytokine Analysis (Serum)  
Histology  
Gene Expression  
Total Protein Levels  
Serum Anti-OVA/HDM IgE

## Example HDM Experimental Schematic

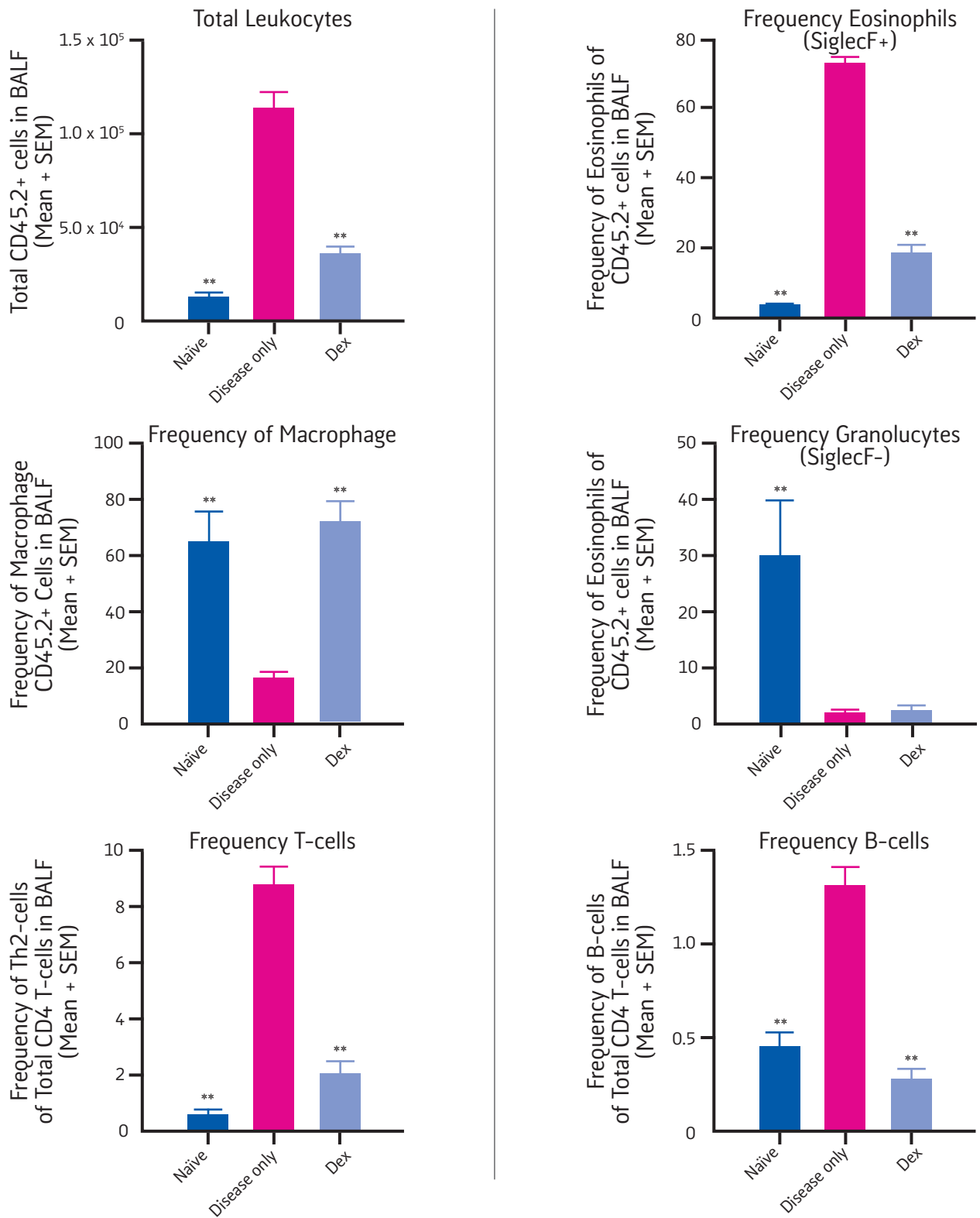


### OVA-Induced Data: Cellularity Profiles of BALF via Flow Cytometry, Ant-OVA IgE & Body Weight Measurements



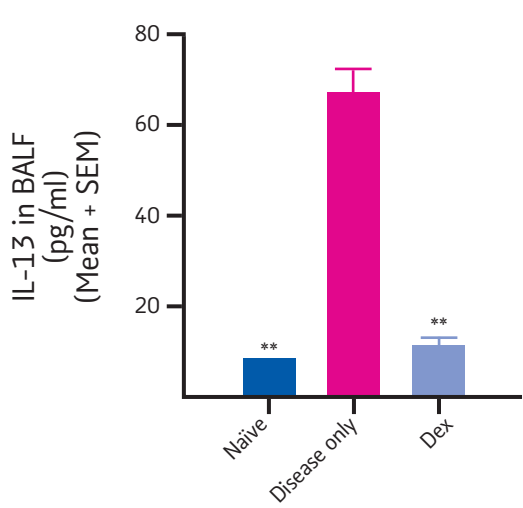
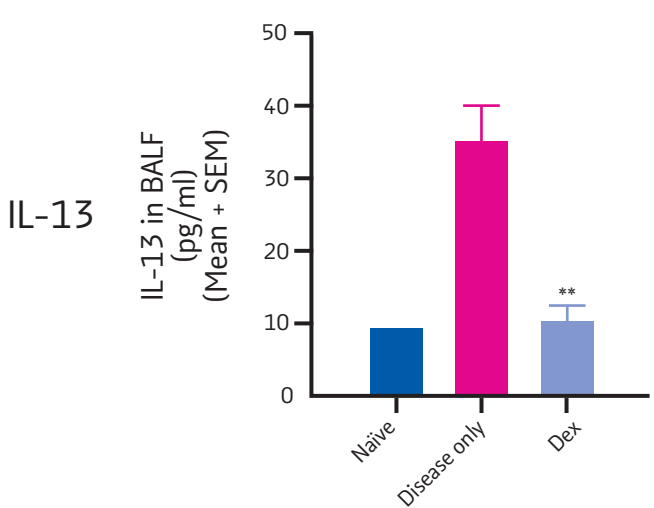
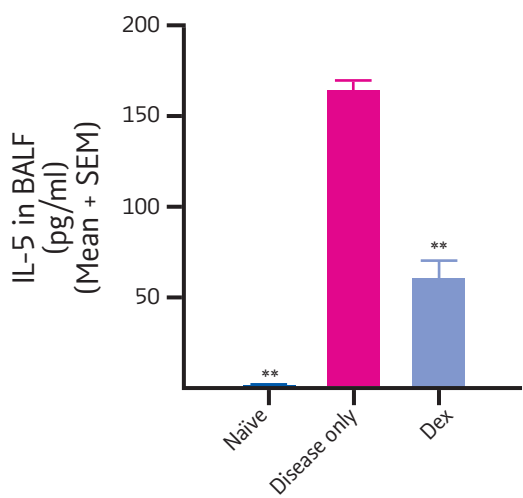
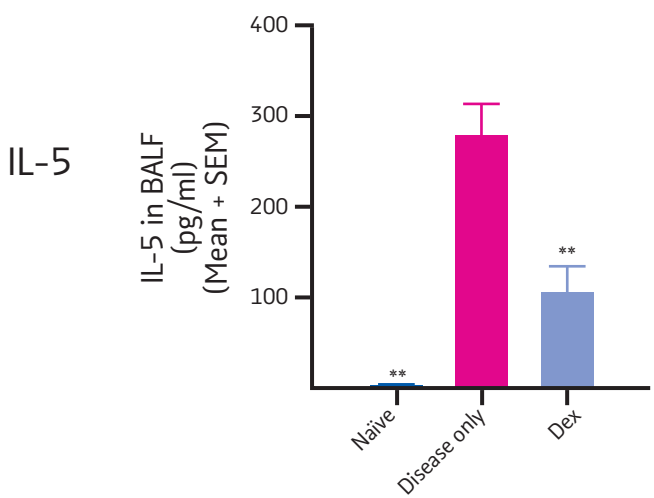
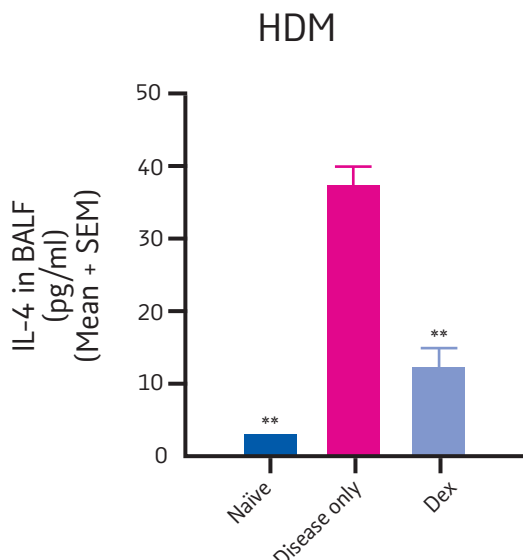
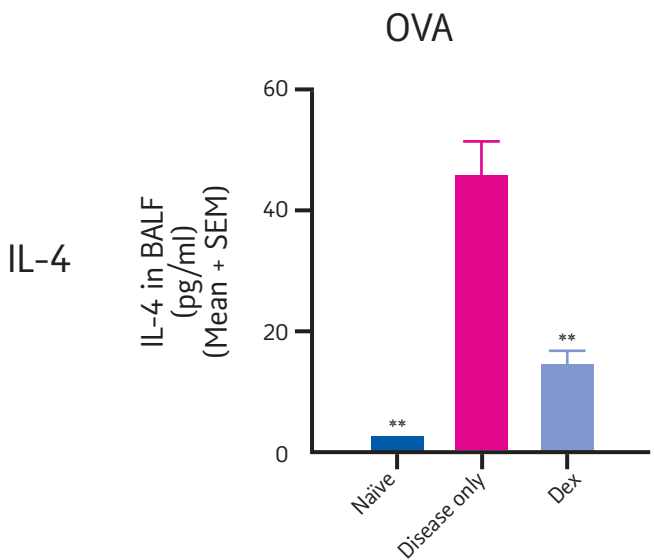
Mice sensitized with i.p. OVA on D0 & D14, challenged i.n. on D25, D26 & D27, termination and sampling on D28. \* = P<.05 compared to disease group; \*\* = P<.01 compared to disease group

### HDM-Induced Data: Cellularity Profiles of BALF via Flow Cytometry



Mice sensitized with s.c HDM on D0 & D14, challenged i.n. on D21,D22 & D23, termination and sampling on D25. \* = P<.05 compared to disease group; \*\* = P<.01 compared to disease group

Cytokine Profiles of BALF via Multiplex



OVA-Induced Cytokine Data. \* =  $P \leq .05$  compared to disease group; \*\* =  $P \leq .01$  compared to disease group

HDM-Induced Cytokine Data. \* =  $P \leq .05$  compared to disease group; \*\* =  $P \leq .01$  compared to disease group

## Our Clients Say ...

"The performance of your team far exceeded our expectations. The study was performed well and we appreciate all your input into the study design. Your responsiveness and feedback during the study and following in the data interpretation was extremely helpful to guide our next steps. That's something we don't find with every CRO."

*S.G., Toxicologist, Biotech Company*

"Of all the CROs that I have used over the years... MLM Medical Labs been one of the very best in terms of scientific knowledge, data quality, timelines, flexibility and personal contacts."

*O.B., Director of Therapeutics, Pharmaceutical Company*

"Throughout our relationship, you have been attentive to our needs and have completed exploratory pilot studies and three drug studies with professionalism and an understanding of tight biotech timelines that are unmatched by other CROs."

*D.Z., Director of Therapeutics, Biotech Company*

## About MLM Medical Labs

MLM Medical Labs is a leading specialty and central laboratory with comprehensive research services and analytical capabilities in Europe and the United States. Offering standard and fully customizable biological specimen testing and auxiliary logistics services across a wide spectrum of therapeutic areas, we add value at every stage of the product development process, from nonclinical and preclinical through phase IV clinical trials that serve to augment and accelerate research programs to their next stages and milestones. Each disease area is supplemented extensively by different models and batteries of *in vitro* and *ex vivo* analyses, offering answers to your therapeutics' effect on different parameters. With our strong reputation for scientific expertise, passionate approach to customer care, and adherence to quality data, we empower clients ranging from emerging biotech to Top Ten Global Pharma companies to reach confident clinical decisions that ultimately serve to improve patient lives.

If you'd like to discuss a particular study or speak with a scientist, please reach out to us!

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