

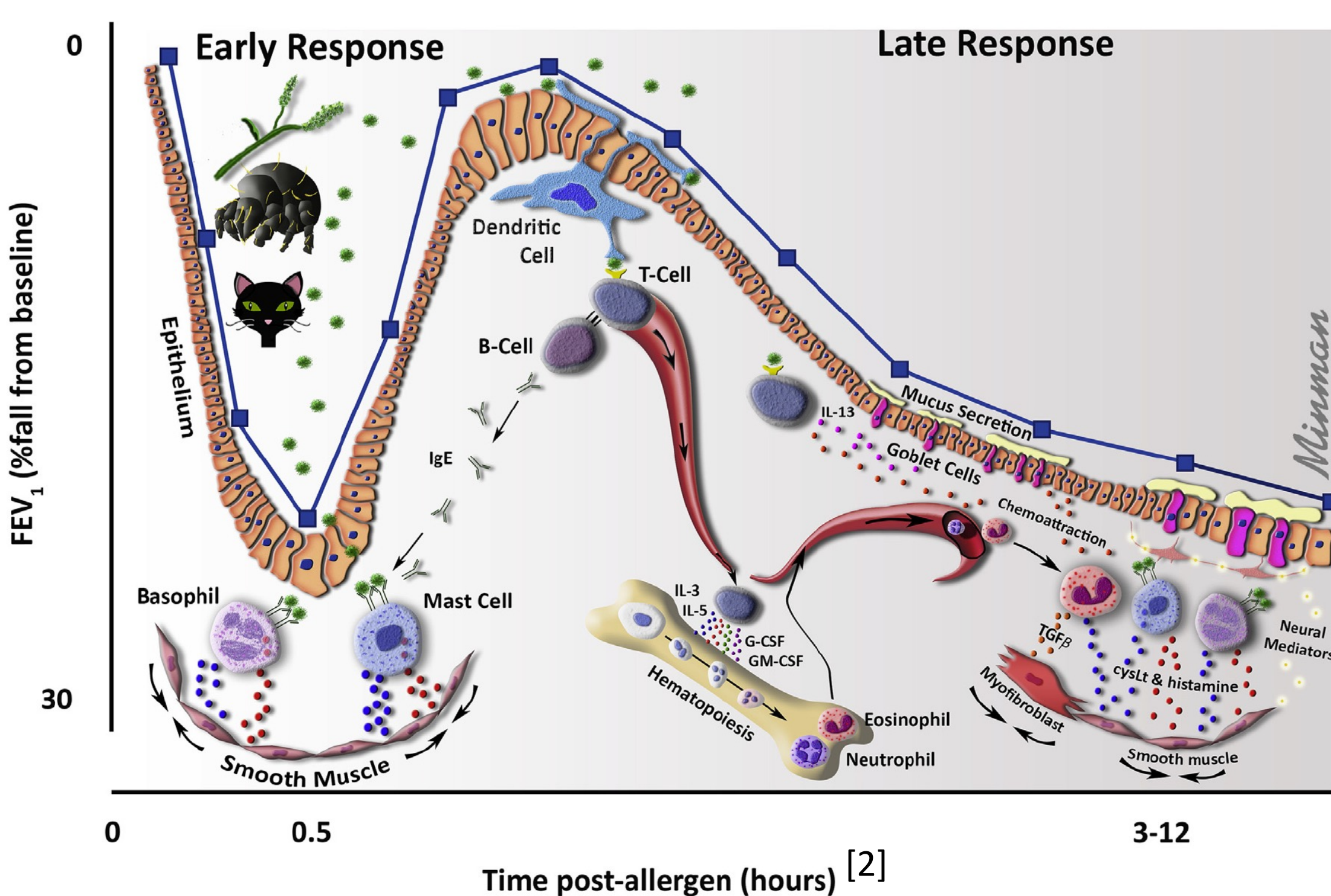


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Introduction

- Late-phase asthmatic response (LAR) refers to the phenomena that a second episode of airway irritation arise after the first reaction to certain allergens among people with mild asthma^[1].

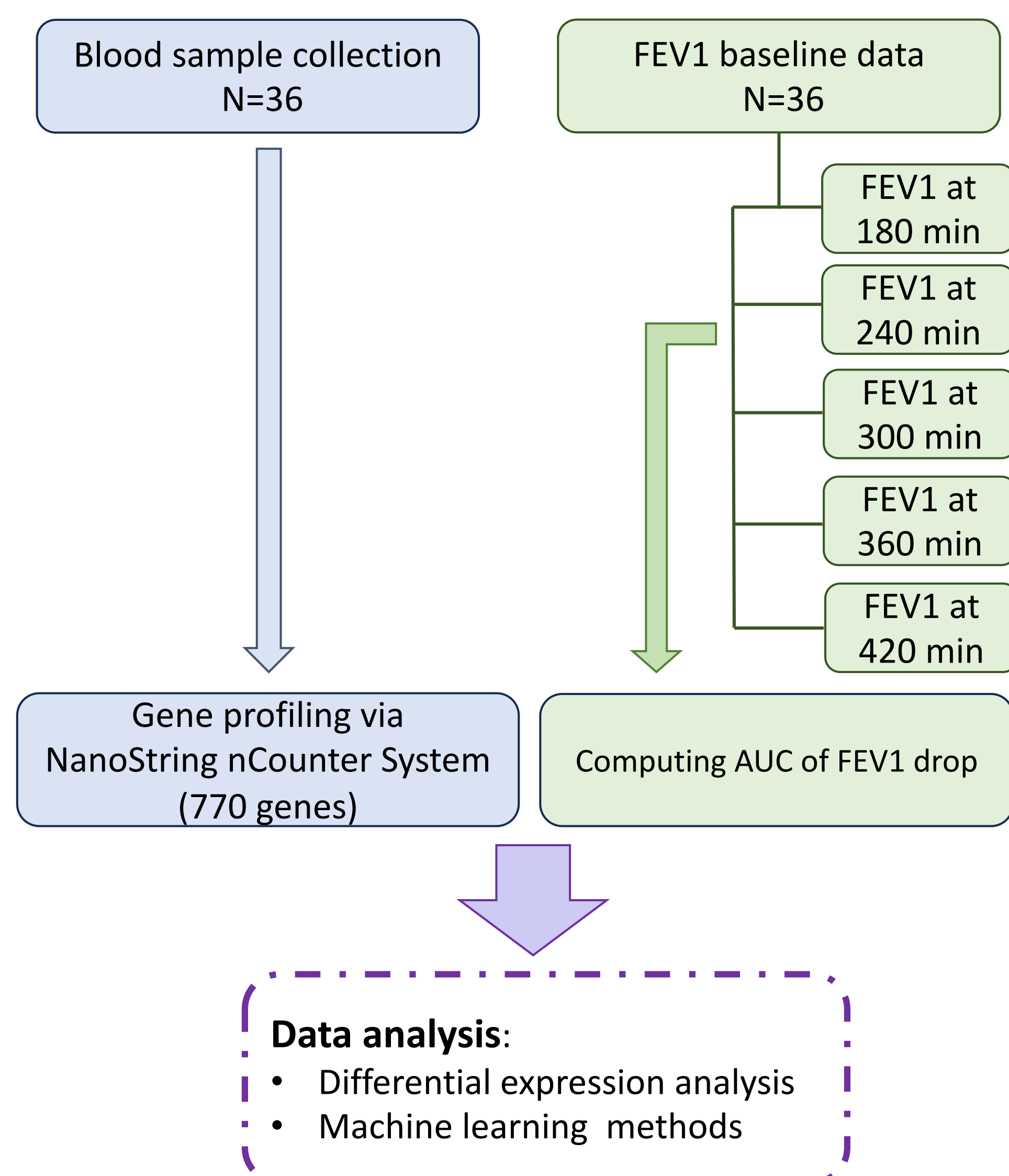


- The decline in lung function during the late response is very variable.

Hypothesis

We can identify blood-based mRNA biomarker panel to predict the late - phase asthmatic response.

Methods



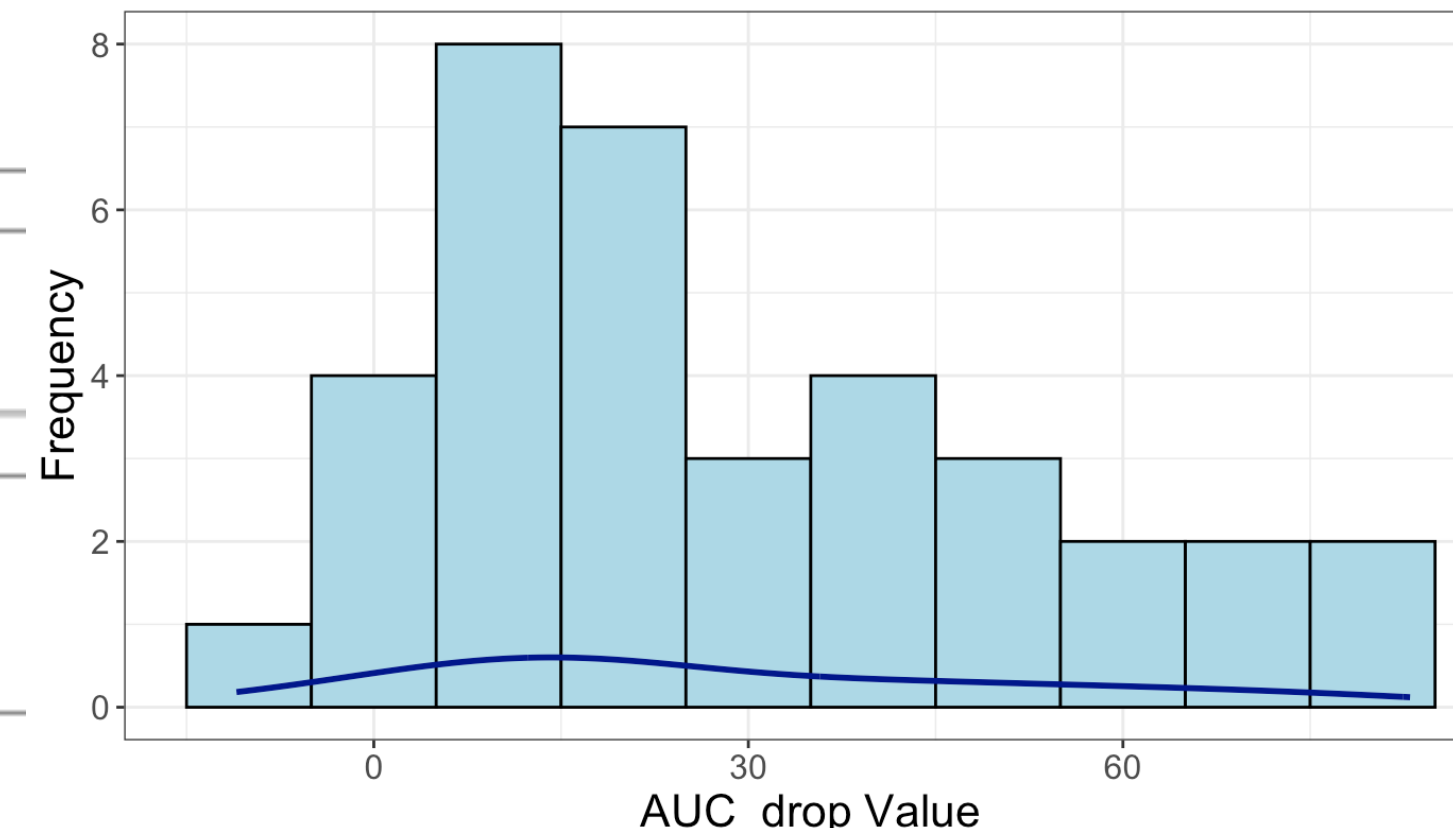
Results

Clinical variables	
Total number of subjects	36
Percentage of female (%)	72.22%
Age(years)	Mean±SD 30.89±11.24
Weight (Kg)	Mean±SD 71.48±14.37
	Missing record (#) 2
Height (cm)	Mean±SD 167.1±8.734
	Missing record (#) 1
Baseline FEV ₁ (L/s)	Mean±SD 3.171±0.770
FEV1drop % = FEV1-BLFEV /BLFEV	
	180 min 0.09
	240 min 0.09
	300 min 0.12
	360 min 0.14
	420 min 0.16
Allergen (# of individuals)	
Cat	21
Fungus	1
Grass	3
HDM	8
Horse	2
Ragweed	1
Site (# of individuals)	
MAC	12
LAVAL	21
UBC	3
Race (# of individuals)	
Caucasian	24
Multiracial	1
White	10
Missing record	1

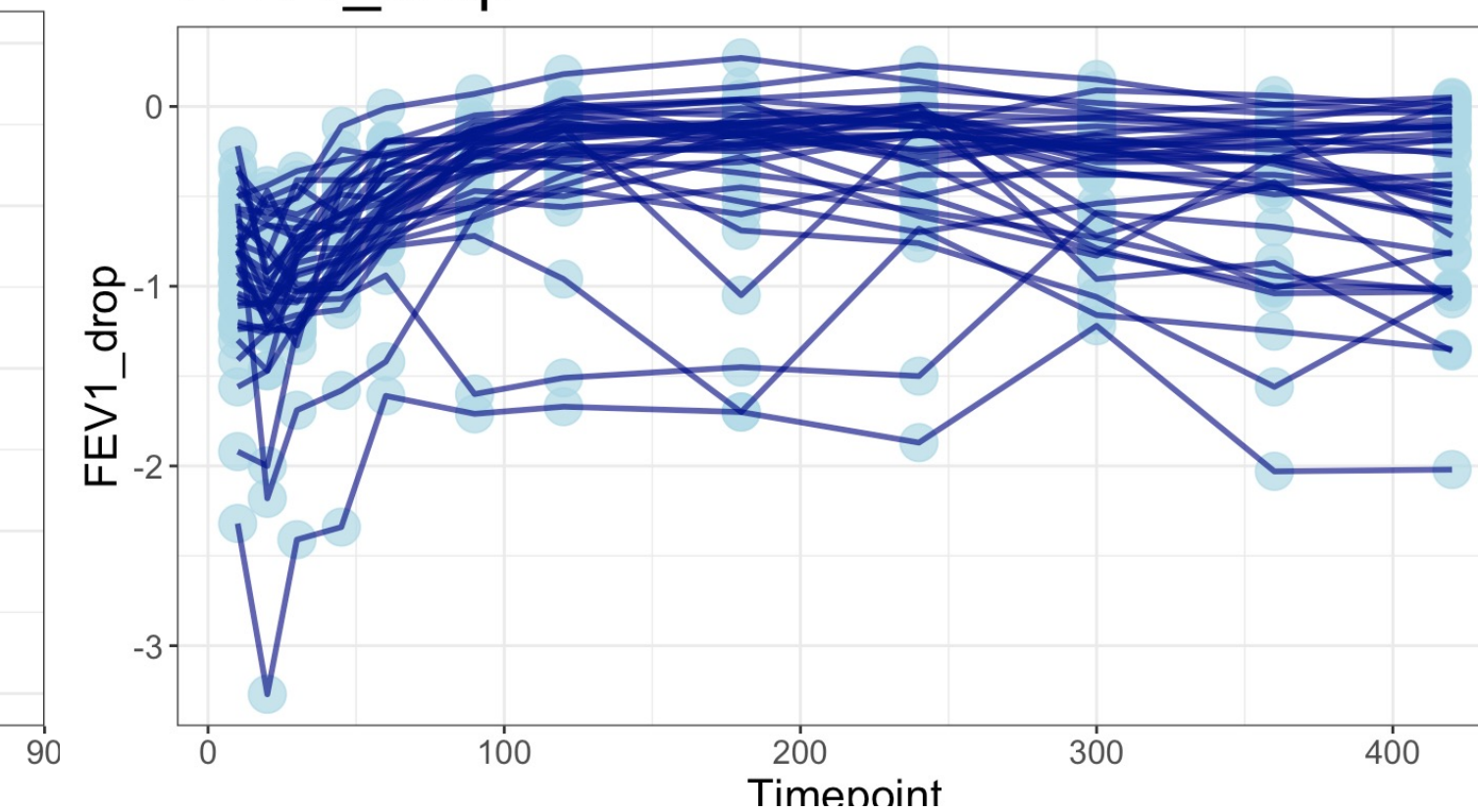
Demographic Information 2



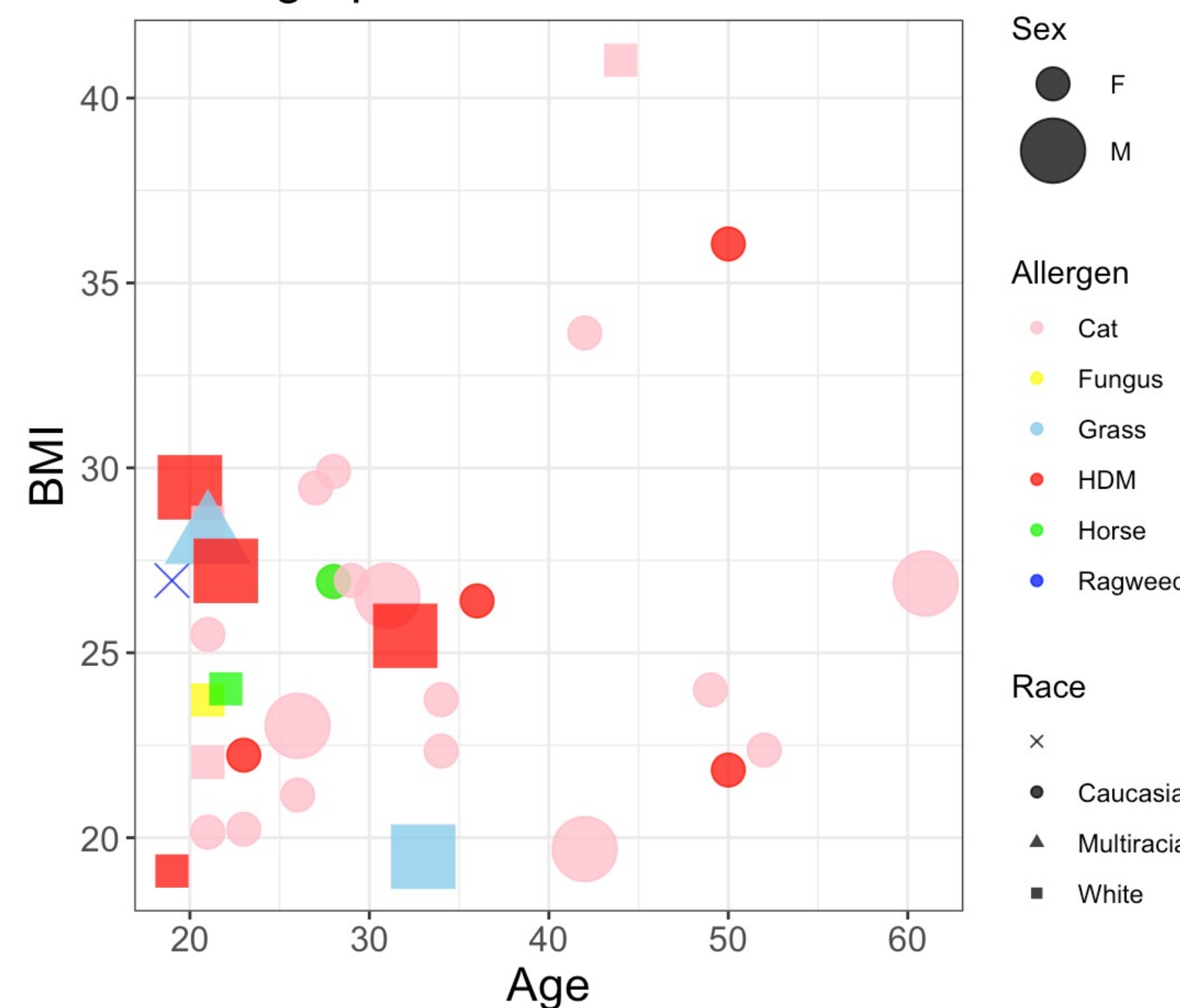
AUC_drop Distribution



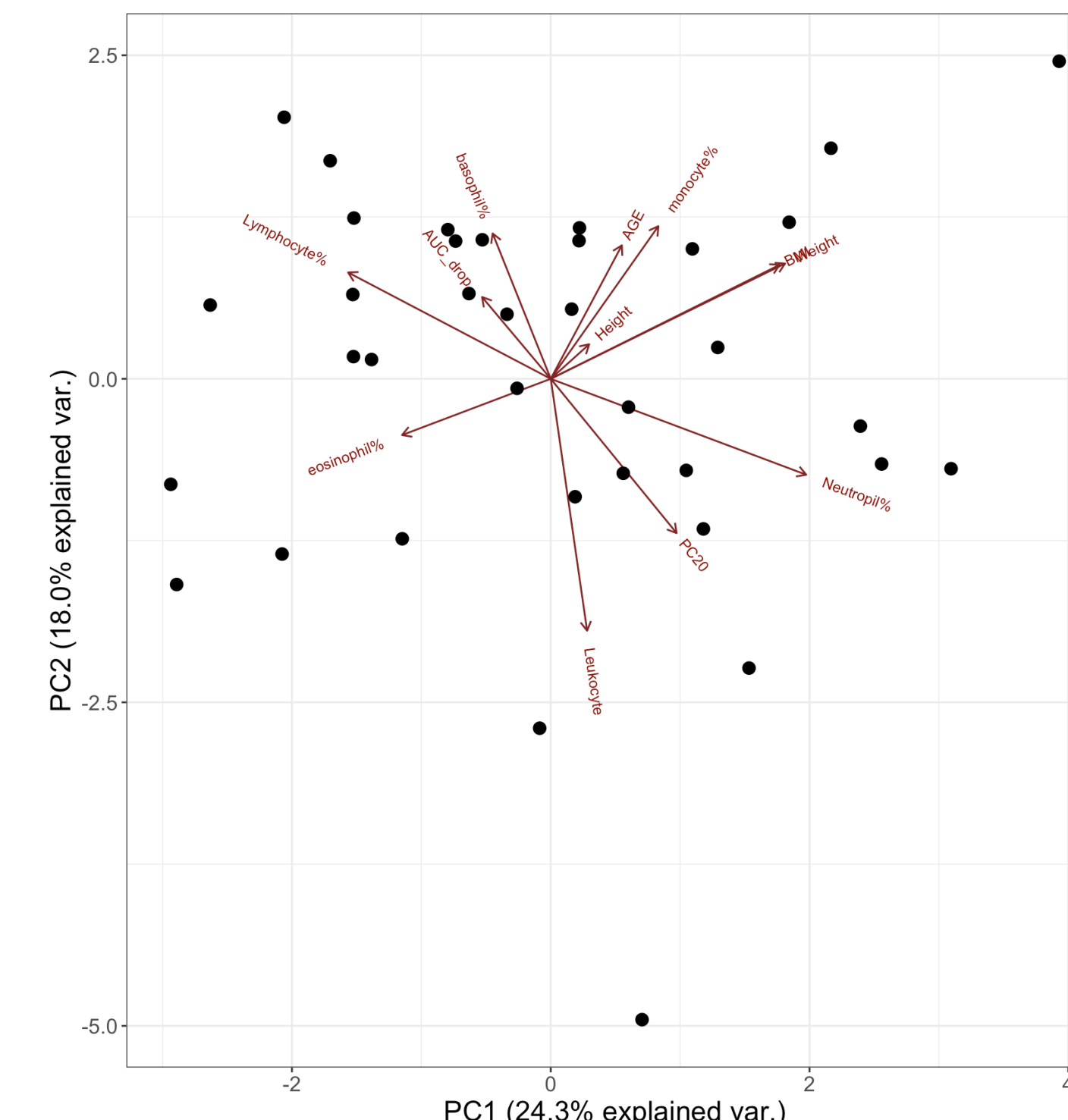
FEV1_drop



Demographic Information 1



PCA of Factors



Conclusion

A blood-based mRNA biomarker panel can be used to predict the LAR in mild asthmatics.

Future directions

Next, differential expression analysis will be conducted among selected genes. Models will be built up to predict the AUC of FEV1 drop. Their utility may be further evaluated in screening for late - phase responders to allow more effective recruitment into clinical trials, *e.g.*, for new asthma drugs directed toward attenuating the asthmatic symptoms.

Reference

[1]. Herxheimer H. The Late Bronchial Reaction in Induced Asthma. *Int Arch Allergy Immunol* 1952;3:323–8

[2]. Gauvreau GM, El-Gammal AI, O'Byrne PM. Allergen-induced airway responses. *Eur Respir J* [Internet] 2015 [cited 2015 Oct 16];46:819–31. Available from: <http://erj.ersjournals.com/content/46/3/819>

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