

# ROLE OF THE MESENCHYMAL STEM CELLS IN THE AIRWAY REMODELING IN ASTHMA.

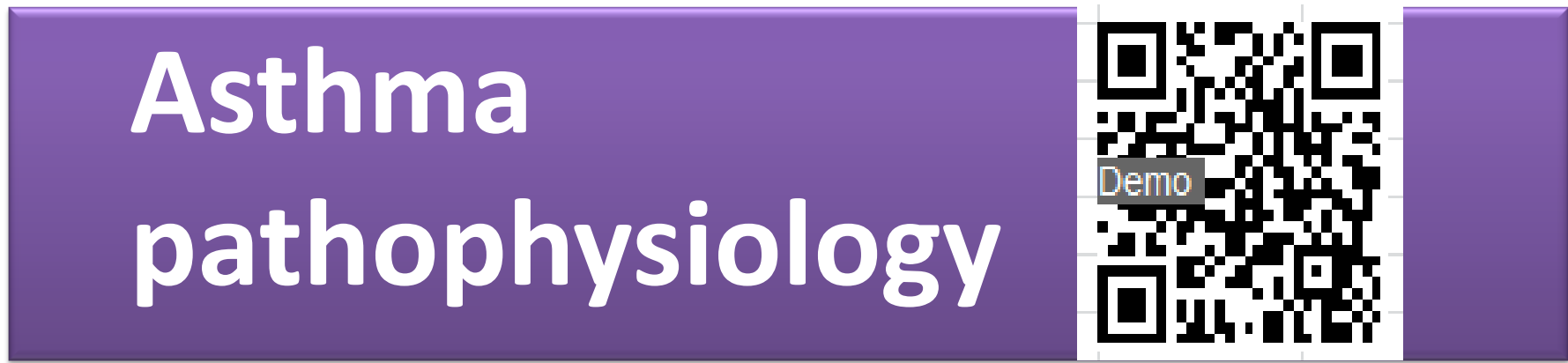
Author: Eva Leceaga Gaztambide Biologia UAB  
Tutor: Nerea Gaztelumendi Corcoles

## INTRODUCTION

### DEFINITION

Asthma is a chronic inflammatory disease of the airways resulting in variable airflow obstruction, airway hyperresponsiveness (AHR) and airway remodeling. It causes recurrent attacks of breathlessness, wheezing, chest tightness and cough particularly at night or in early morning which vary in severity and frequency from person to person.

### PATHOPHYSIOLOGY



### TREATMENT



Mesenchymal stem cells , for their antiinflammatory and immunoregulatory function, could be effective as a treatment in all kind of asthma

**235.000.000 million people suffer from asthma**

**10% don't have an effective treatment**

## HYPOTHESIS

In an in vitro model of asthma induced by CD4+, the human MSCs derived from adipose tissue could reduce the remodeling of smooth muscle cells.

## OBJECTIVES

To analyze by in vitro model, the effect of the MSCs in the remodeling of the smooth muscle of airway cells induced by TCD4+ and determine if such an effect depends on the direct contact between cells or of soluble factors released by the MSCs.

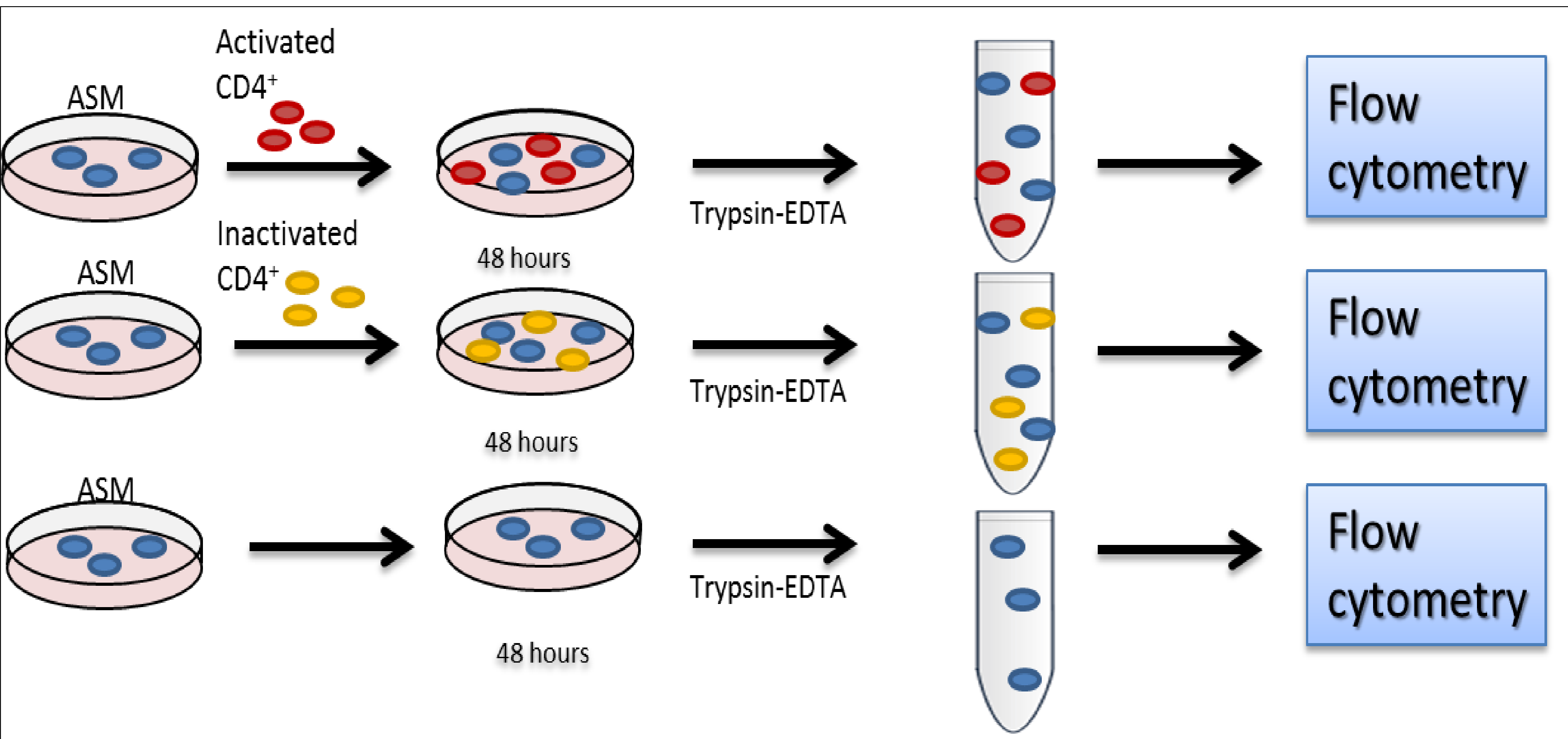
## MATERIAL AND METHODS

### CELL LINES AND CELL CULTURE

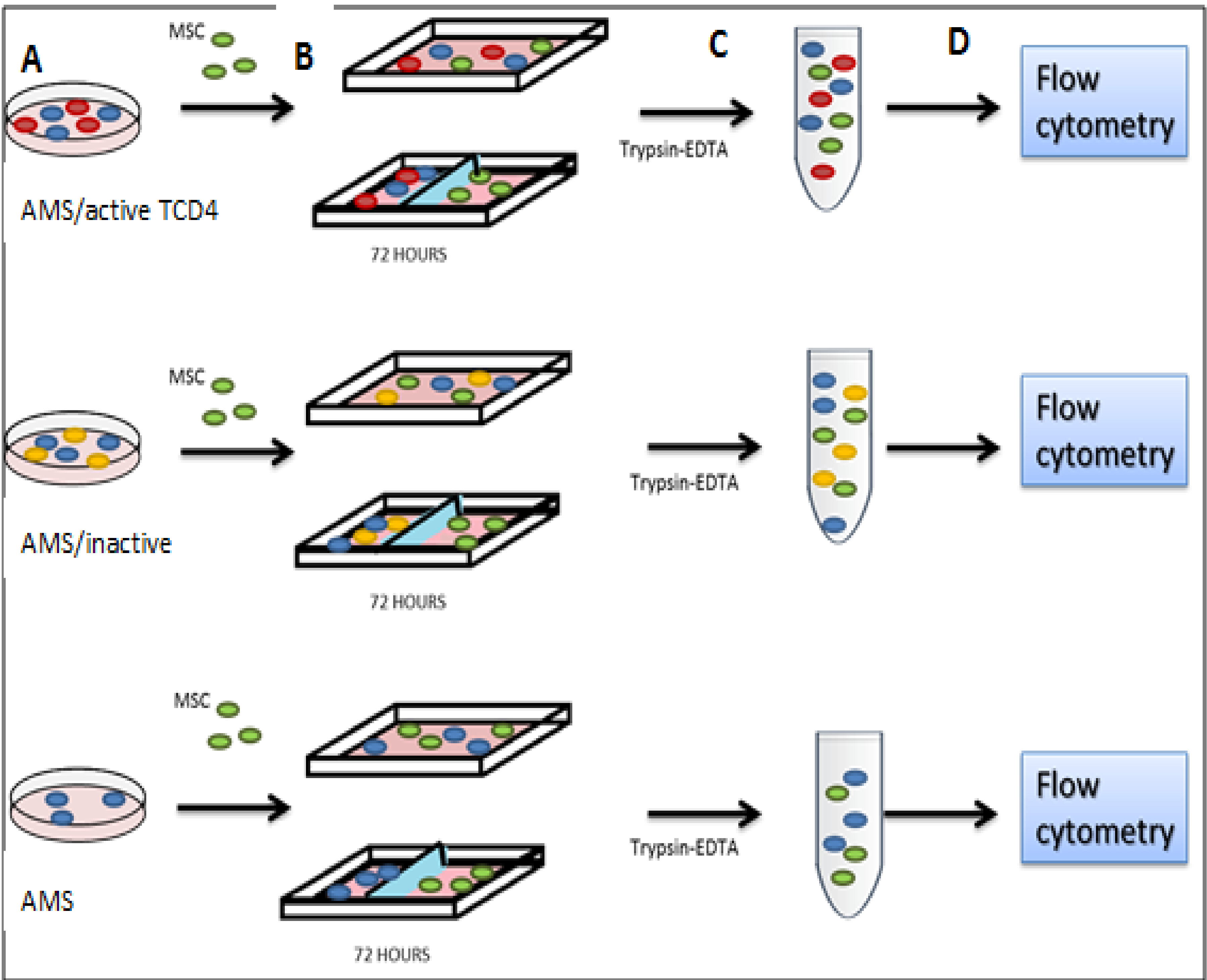
CELL LINES { ASM  
MSC

HUMAN BLOOD  
PRIMARY CULTURE: → TCD4 { INACTIATED TCD4  
ACTIVATE TCD4 (OVA)

### OBJECTIVE 1: ASM/TCD4 CO-CULTURE



### OBJECTIVE 2: ASM/TCD4/MSC CO-CULTURE



## FUTURE EXPECTATIONS



## REFERENCES

Moore WC, et.al. (2010); Carole Ober et.al. (2011); Bateman ED et.al. (2008); Okayama Y, et.al. (2007); Gordon BR, (2008); Masoli M, et.al. (2004); WHO (2013); Global initiative asthma (2014); Boulet L-P (2009); Ulrik CS, et.al. (1999); Ramos-Barbón D, et.al (2010); Barnes PJ (2008); Polito AJ, et.al. (1998); Reuter S, et.al. (2010); Okayama Y, et.al. (2009); Steinke JW, et.al. (2001); Rael EL, et.al. (2011); Greenfeder S, et.al. (2001); Matsuzawa S, et.al. (2003); Shinagawa K, et.al. (2003); Borja G. et.al. (2013); Nemeth K, et.al. (2010); Bonfield TL, et.al. (2010); Srouf N. (2014); Pabst R (2003); Kang XQ, et.al. (2006); Le Blanc K, et.al. (2005); Carl A. Gregory, et.al. (2005); Baksh D, et.al. (2004); Figueroa FE, et.al. (2012); ATCC (2012); ATCC (2015); Lomonte B (2009); Ramos-Barbón D, et.al. (2005);.