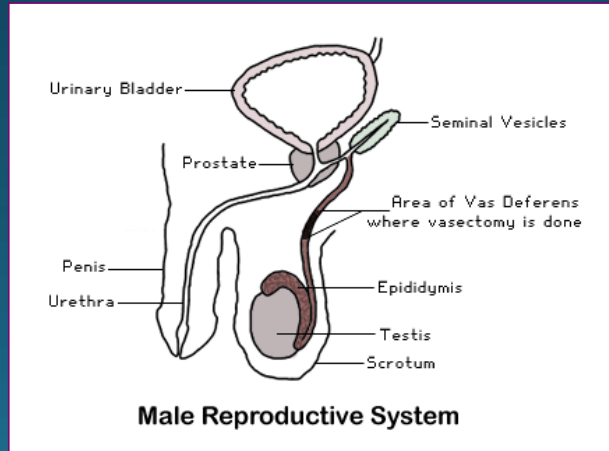


Killing 2 birds with one stone:  
Exploring use of anti-sperm antibody to prevent  
Cell-associated HIV transmission in addition to pregnancy

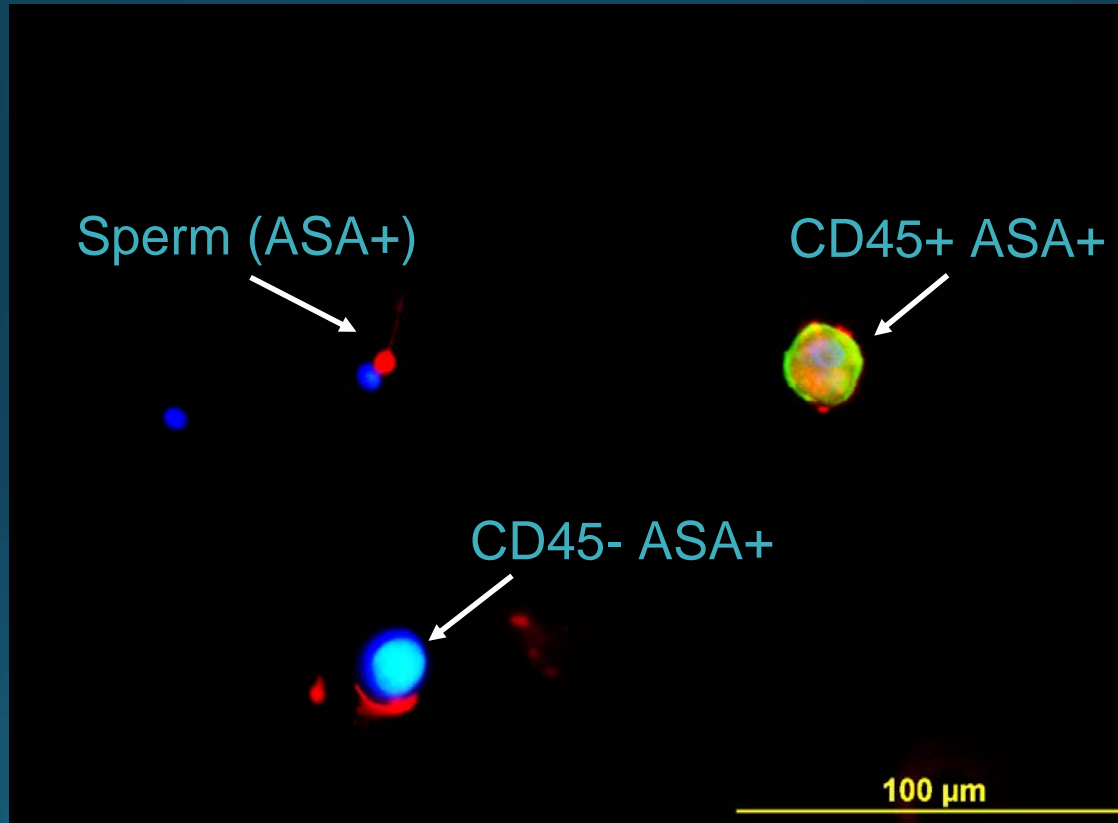
Jai Marathe

# Anti-sperm antibody (ASA)

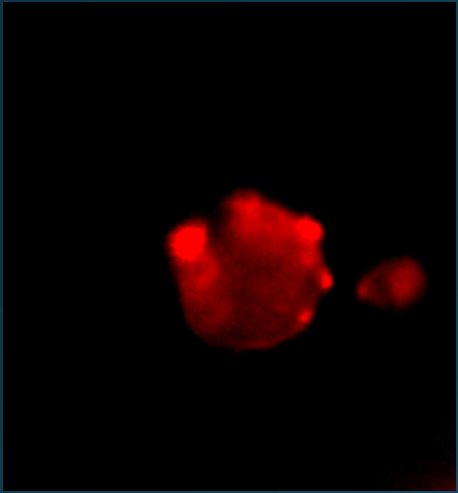
- Discovered in 1980's
- Isolated from blood of an infertile woman
- Agglutinating Antibody directed against CD52g antigen
- CD52g is secreted in male genital tract (Mainly in epididymis, vas deferens and seminal vesicles)
- Inserted into the cell-membrane of spermatozoa in the lumen of male genital tract



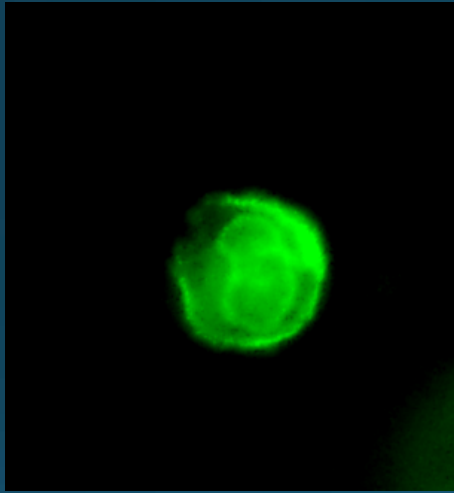
# Is CD52g inserted into the cell membrane of seminal leukocytes?



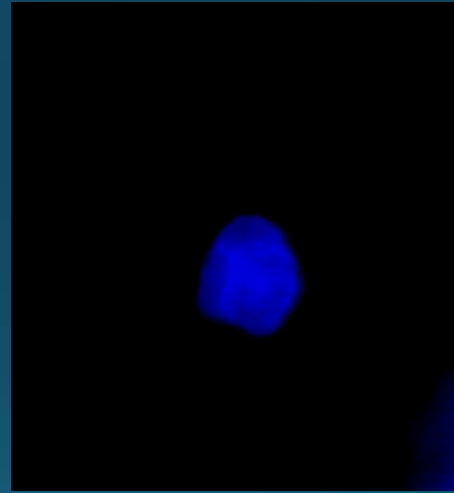
# CD45+ ASA+ seminal leukocyte



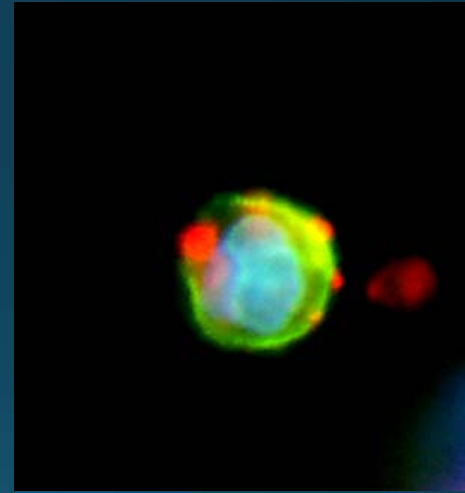
Anti- CD52g (MHS8)



Anti- CD45

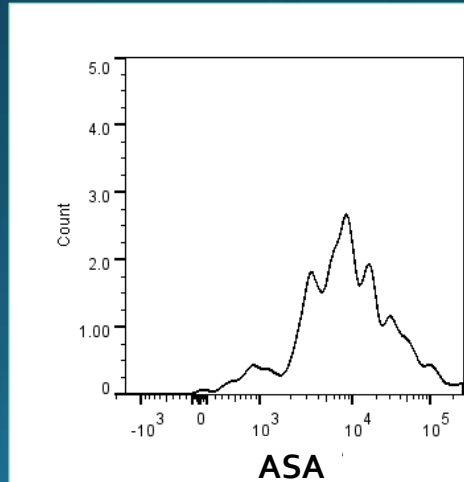
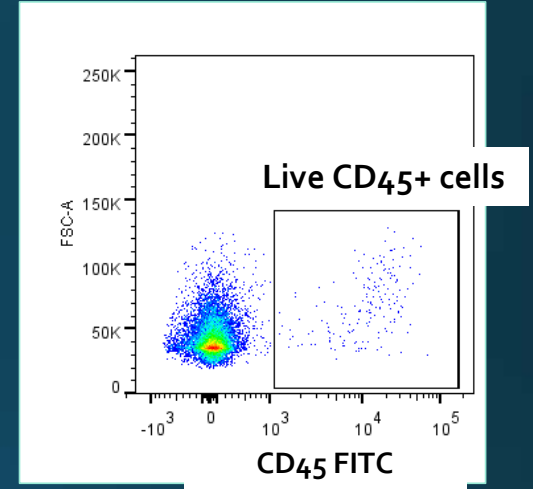
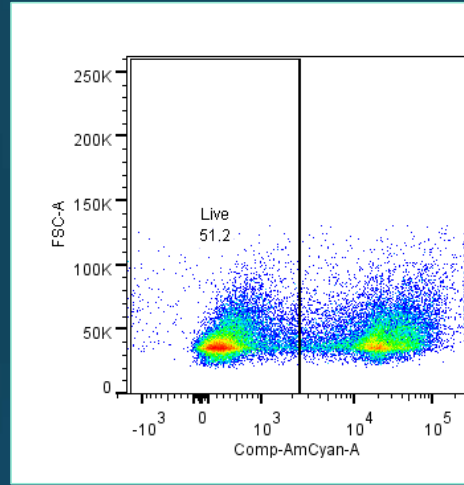
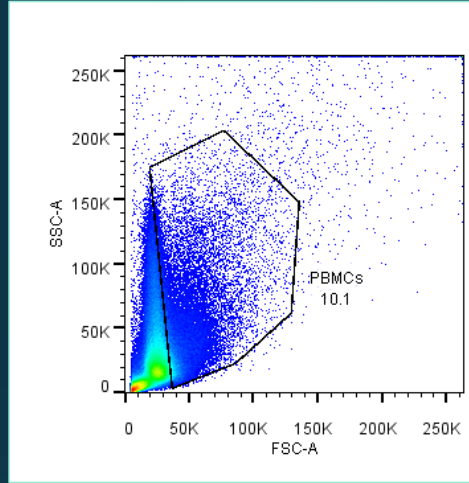


DAPI

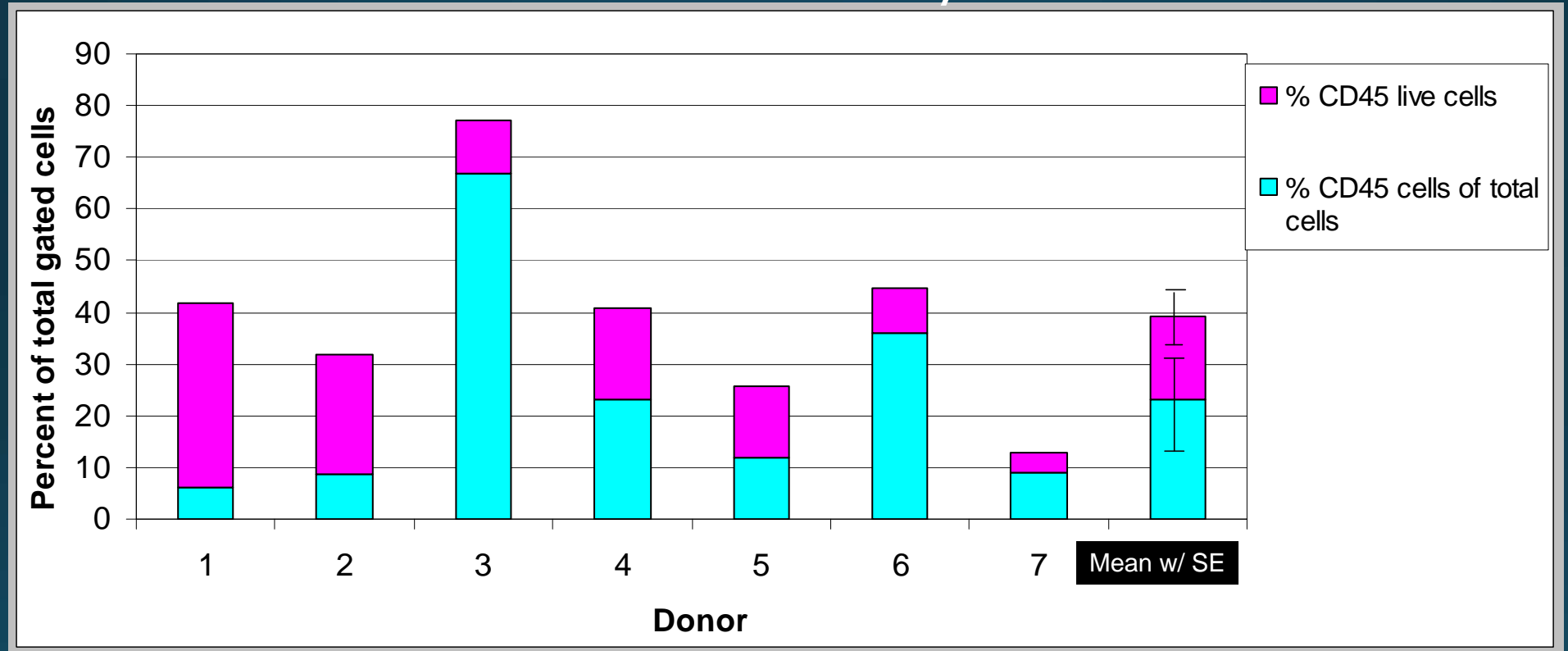


Merge

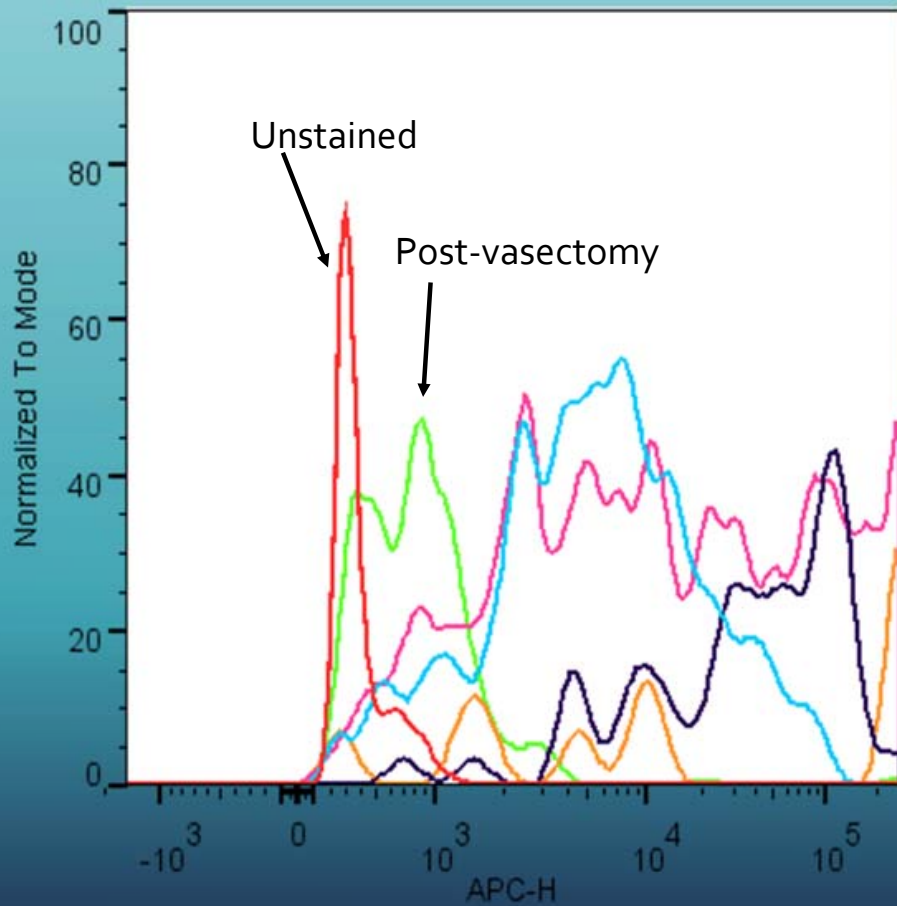
# Flow Cytometric Analysis of ASA staining of seminal live CD45+ cells



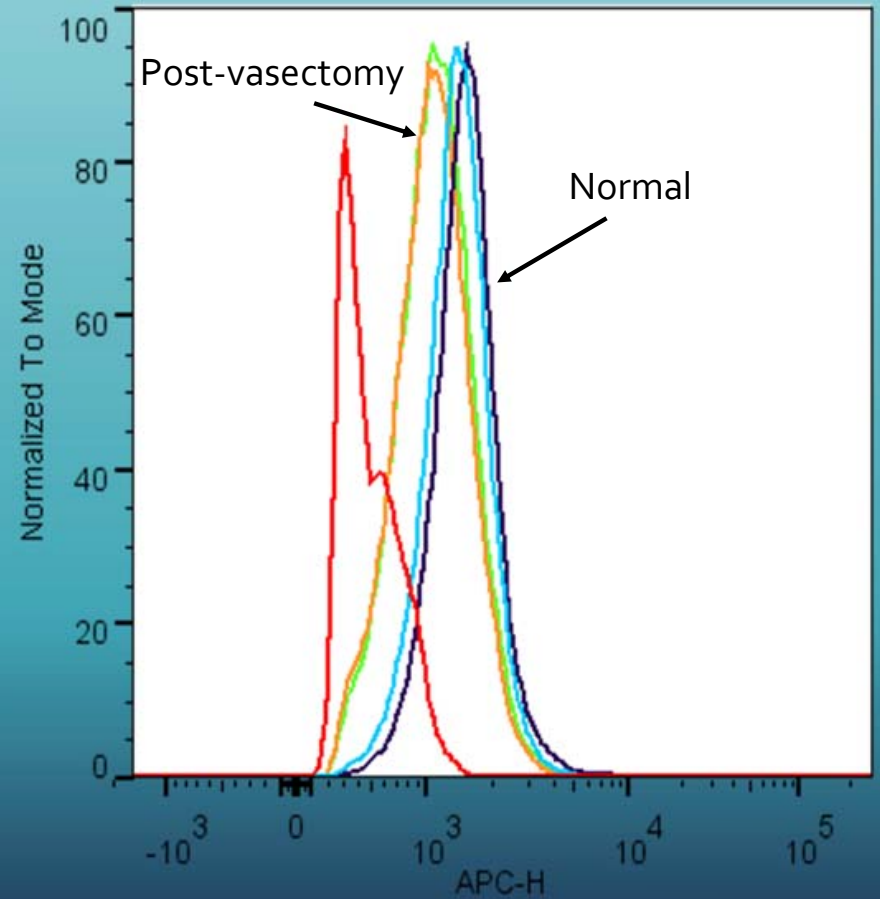
# Interdonor variability in percent live CD45+ seminal leukocytes



Seminal mononuclear cells were isolated on ficoll gradient within 4hours of collection



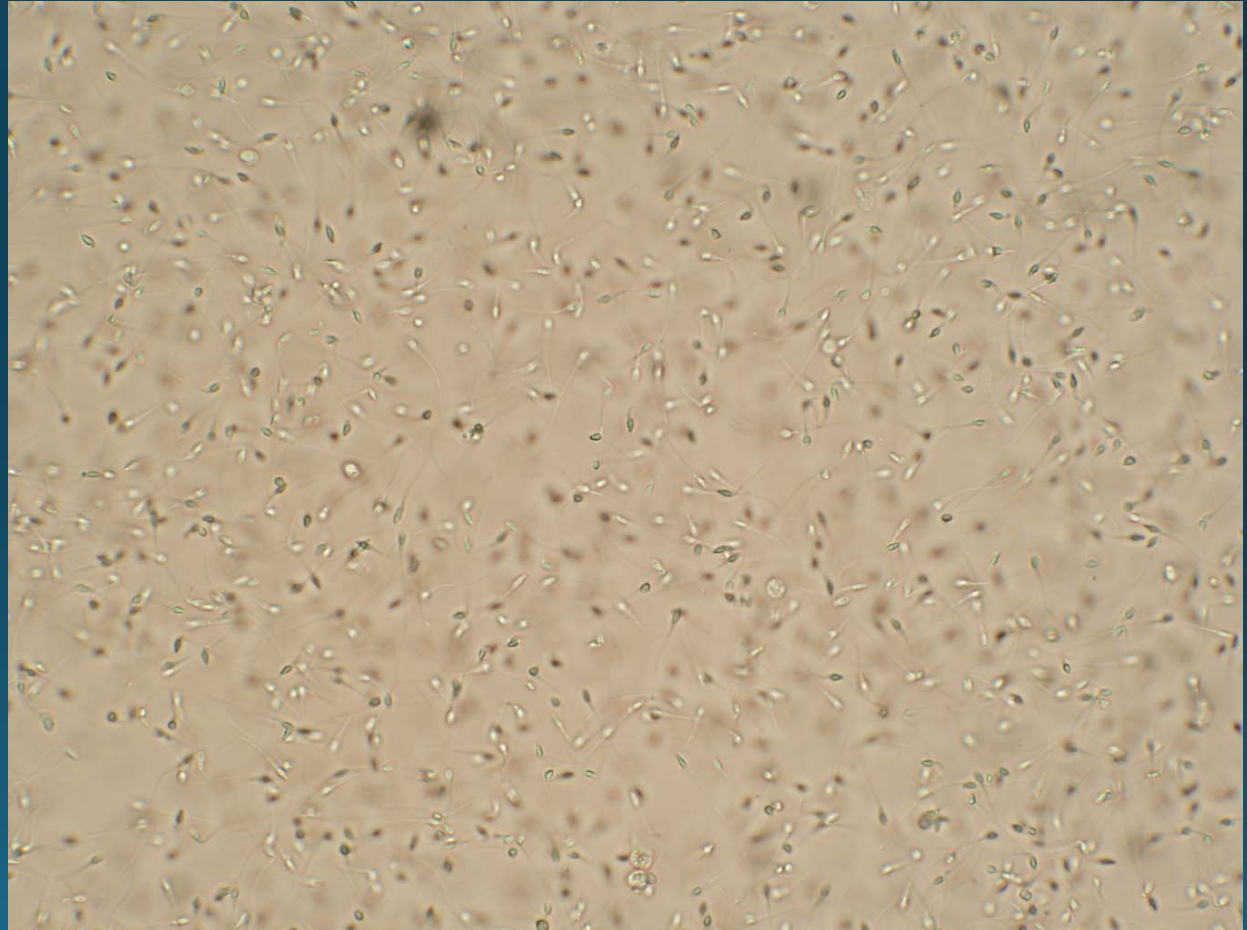
Seminal mononuclear cells isolated on Ficoll gradient stained with CD45 and ASA for flowcytometric analysis



PBMCs incubated for 2 hours with normal or vasectomized seminal plasma stained with CD45 and ASA

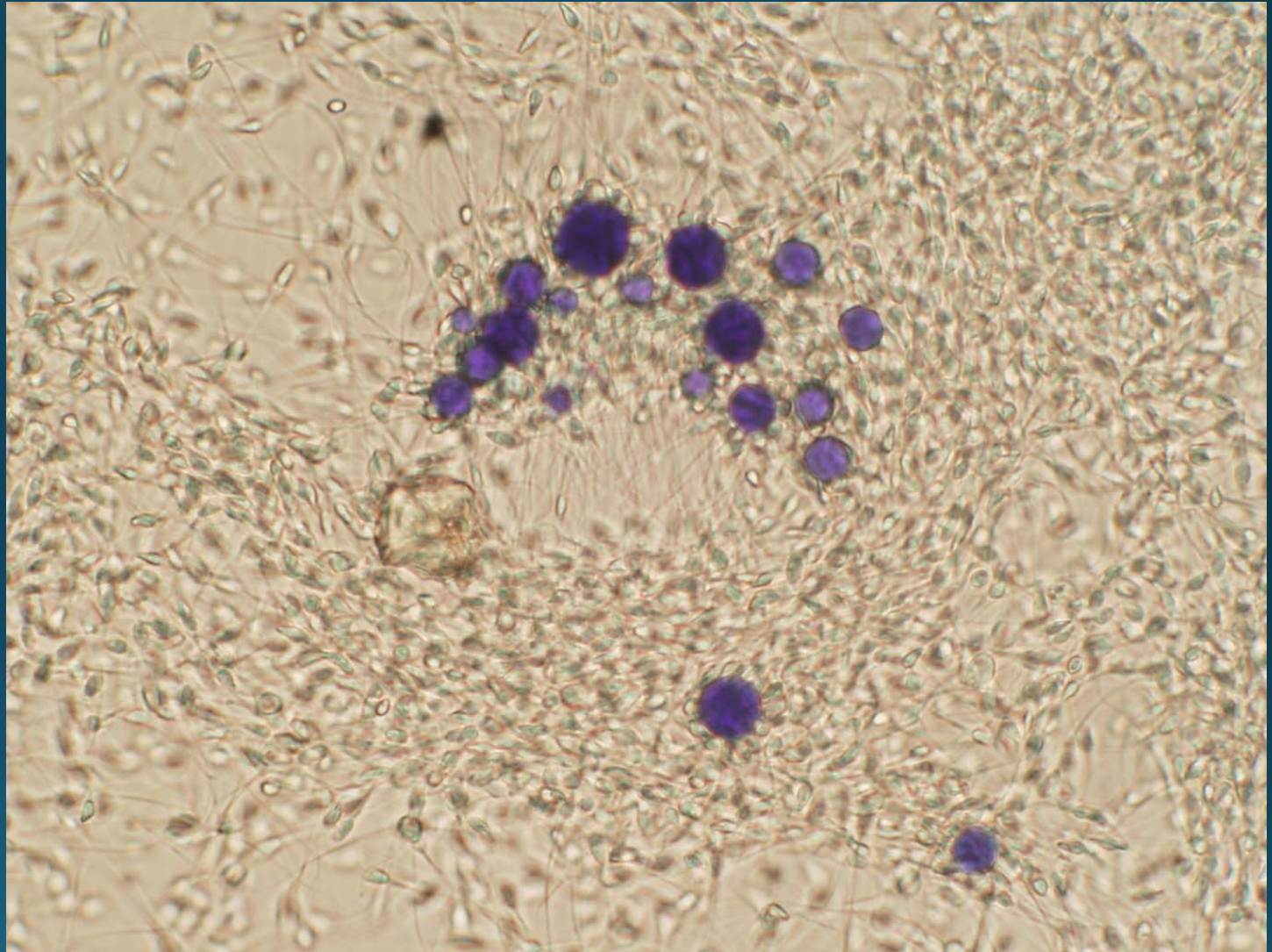
Are seminal leukocytes capable of being agglutinated with sperm when treated with ASA

Normal motile sperm

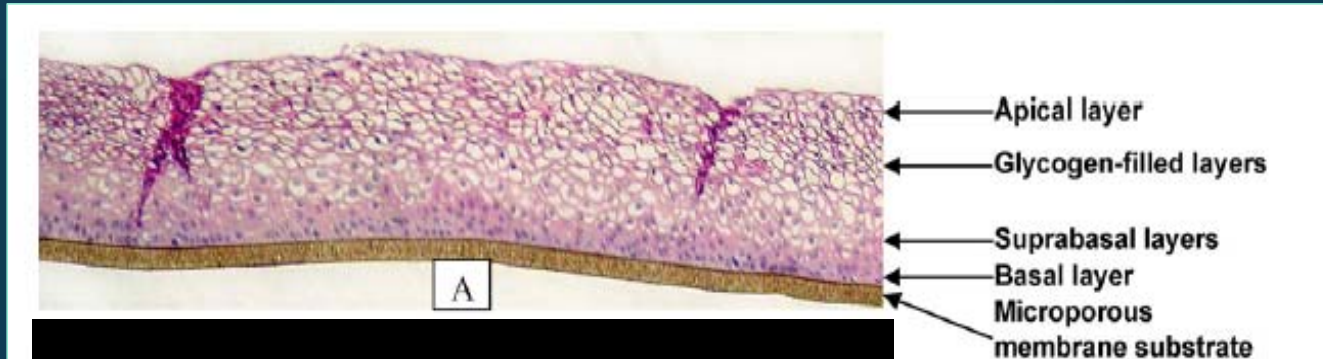




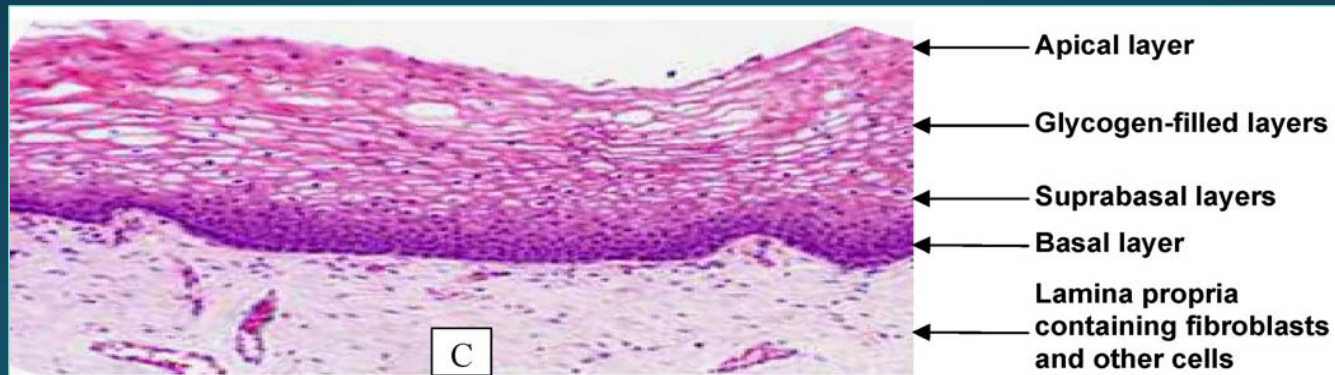
Sperm and live  
seminal  
mononuclear cells  
treated with ASA



# Vaginal epithelial model by MatTek

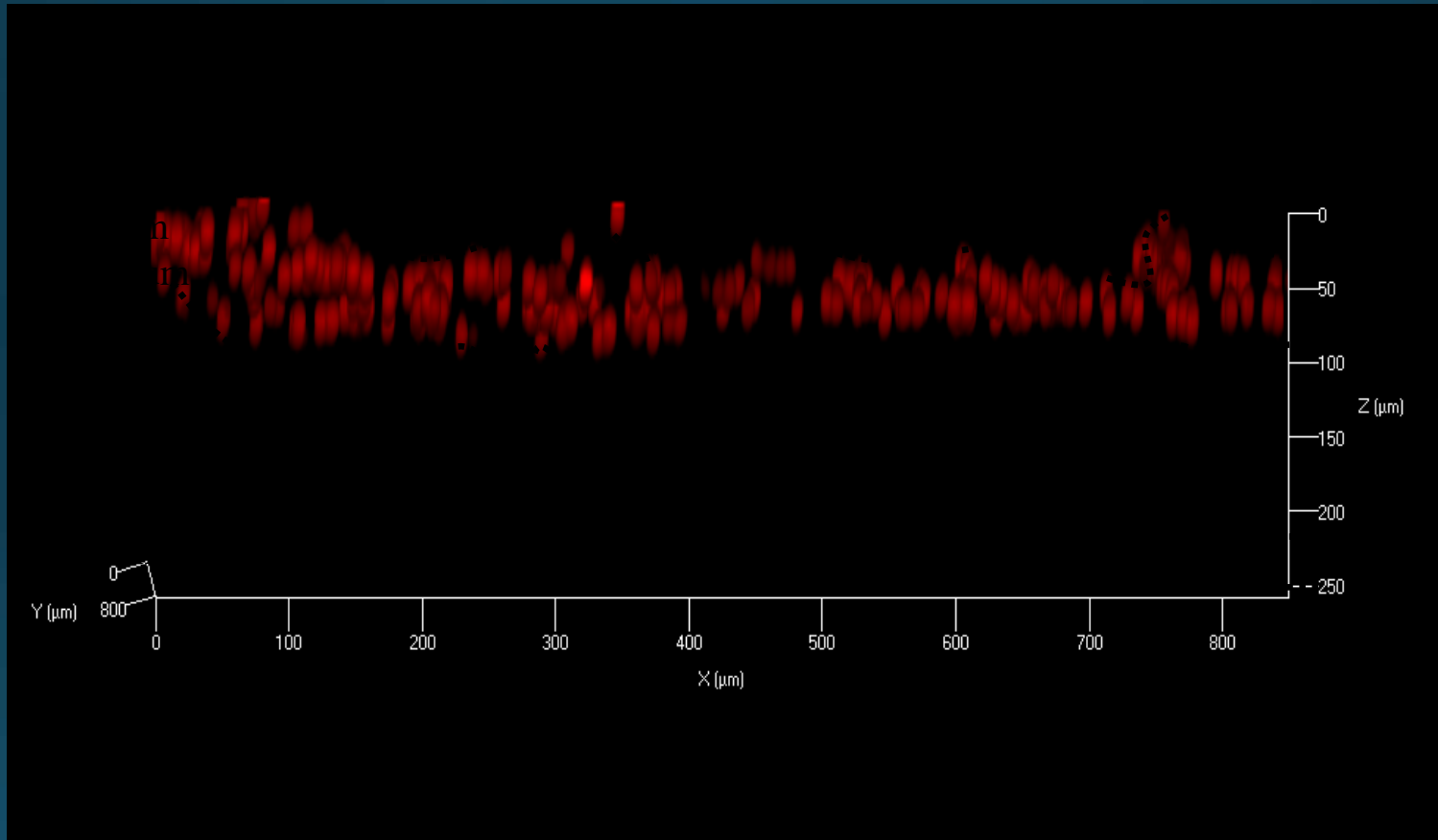


EpiVaginal VEC-100 tissue



Native human explant vaginal tissue

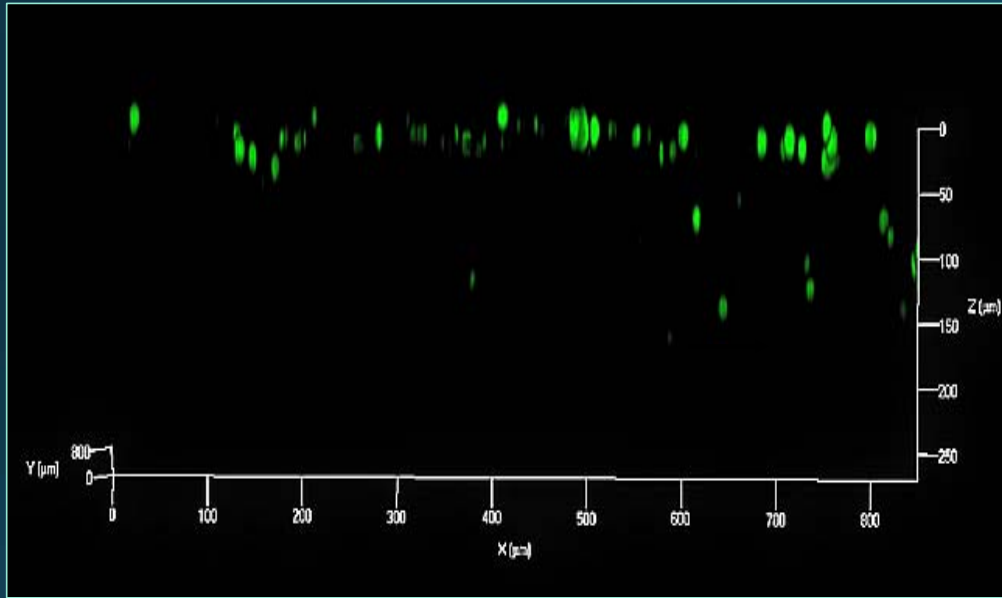
## 3D Reconstruction: 10um beads on EpiVaginal surface



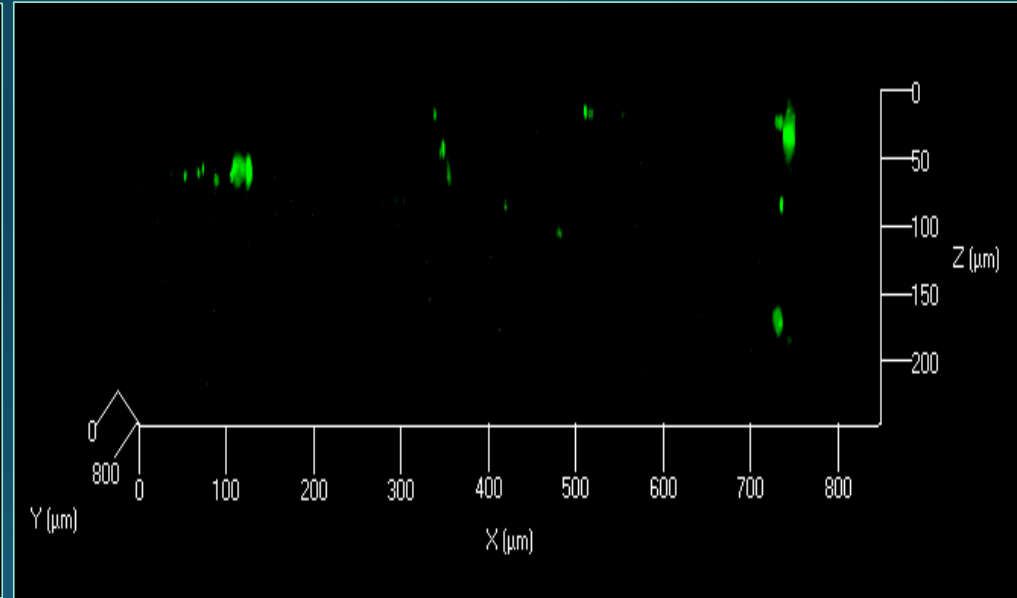
Courtesy Dr. Blaskewicz

# Infiltration studies: Preliminary data

**A** MDM infiltration in presence of SP



**B** Seminal leukocyte infiltration in presence of SP



- EpiVaginal tissues were TNF treated for 24 hours prior to infiltration
- Images show cells stained with Live Cell tracker CMFDA

MDM= monocyte derived macrophages



# Conclusions

- CD52 g antigen is detected on cell membrane of seminal leukocytes
- >95 % Seminal mononuclear cells were associated with agglutinated spermatozoa on treatment with anti-sperm antibody
- Future studies will determine whether ASA can block mononuclear cell infiltration of tissue

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Thank You!

