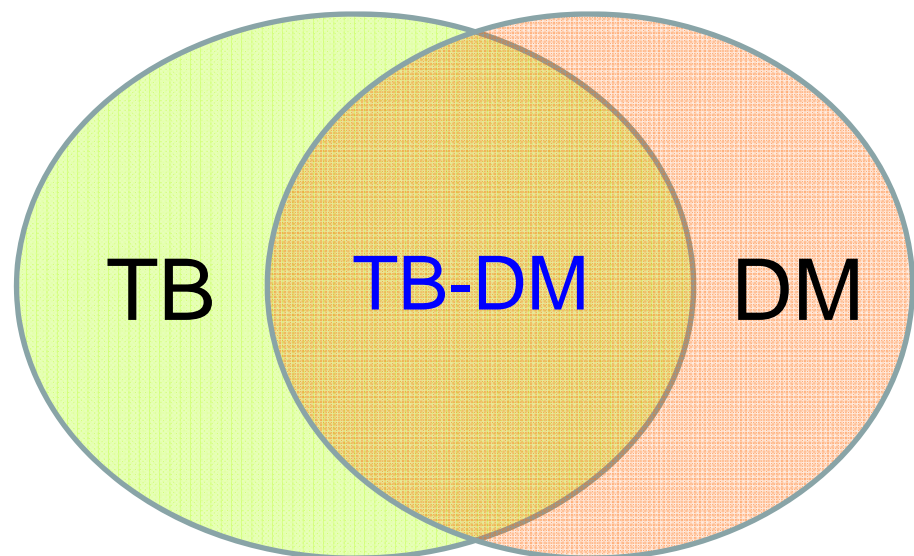


# TB-DM in a Hispanic and Obese Community Along the US-Mexico Border



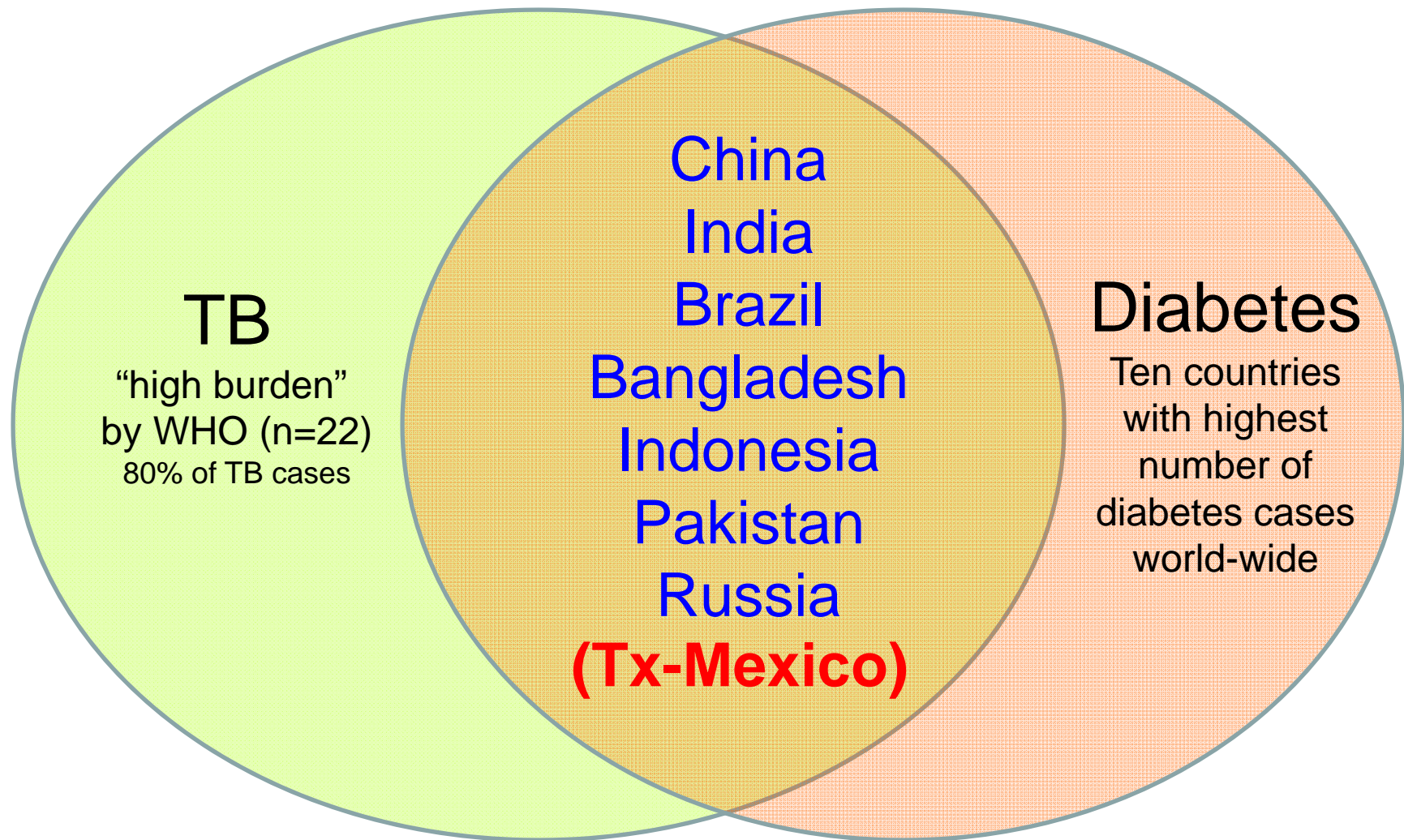
Blanca I Restrepo, Ph.D.  
Associate Prof Epidemiology  
(EHGES Division)

University of Texas Health Houston  
School of Public Health  
Brownsville Regional Campus

NIH Workshop TB-DM  
NIAID-NIDDK  
May, 2016



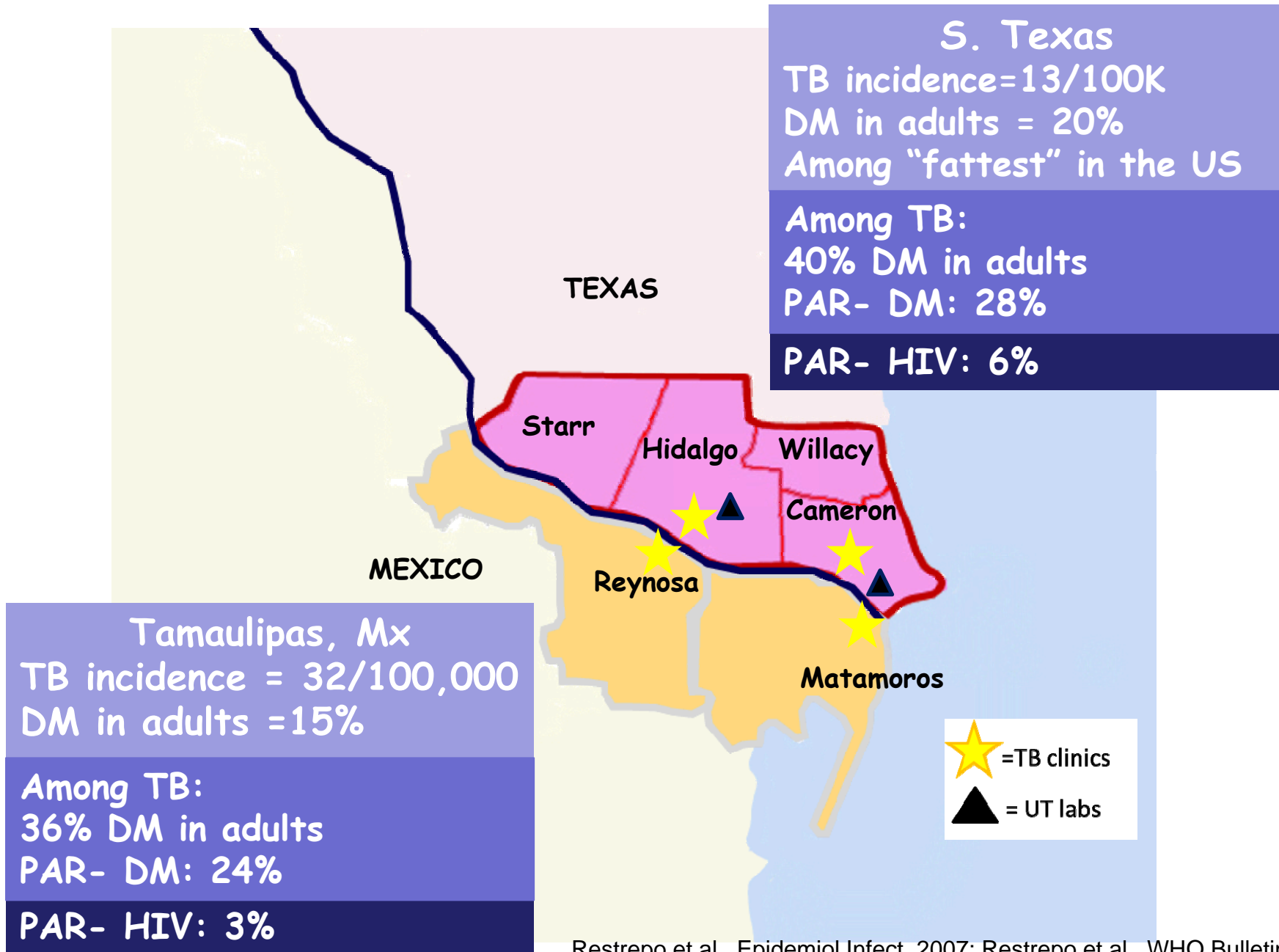
# Overlap of TB and diabetes



# Texas-Mexico border



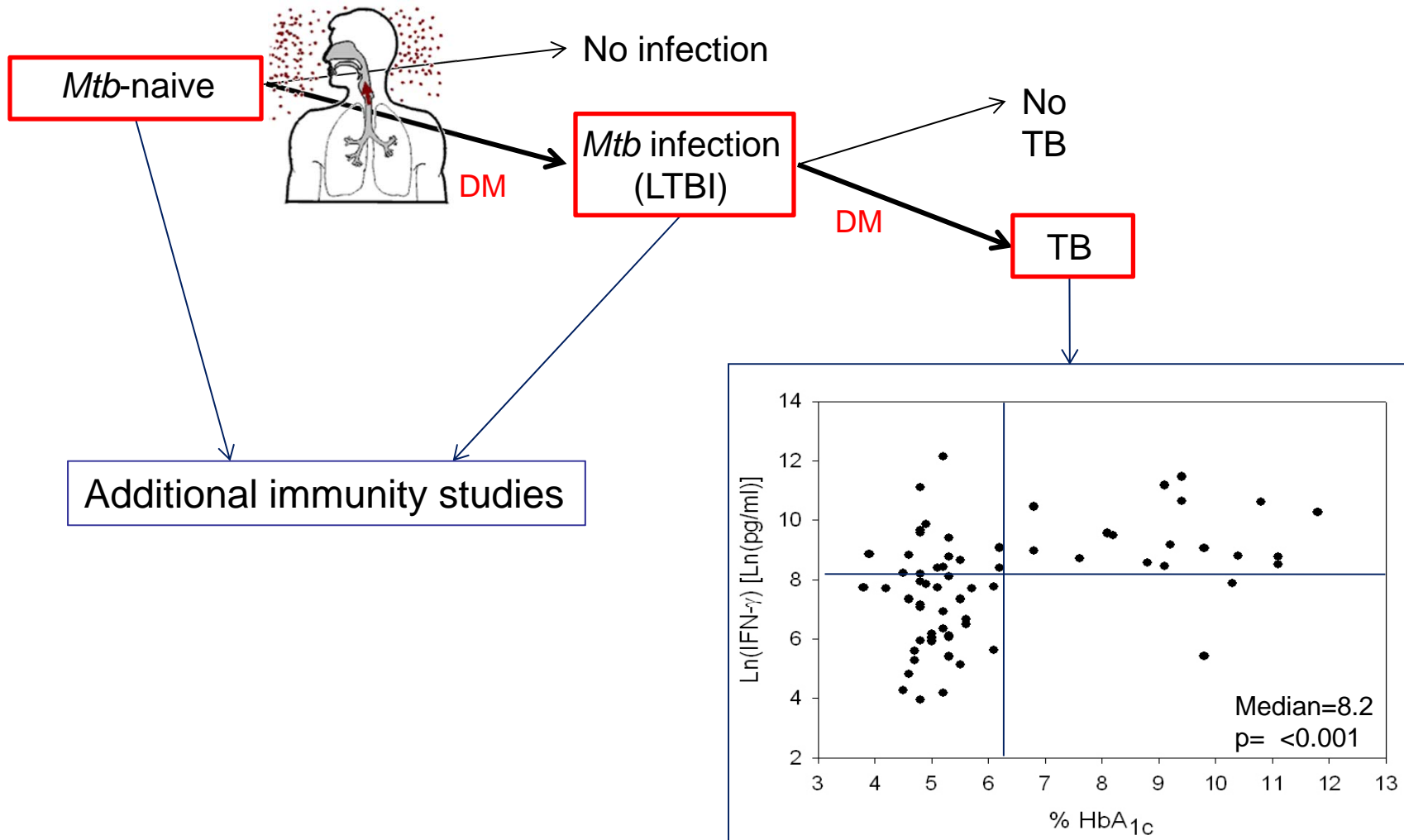
# TB and DM2 in the Texas-Mexico border



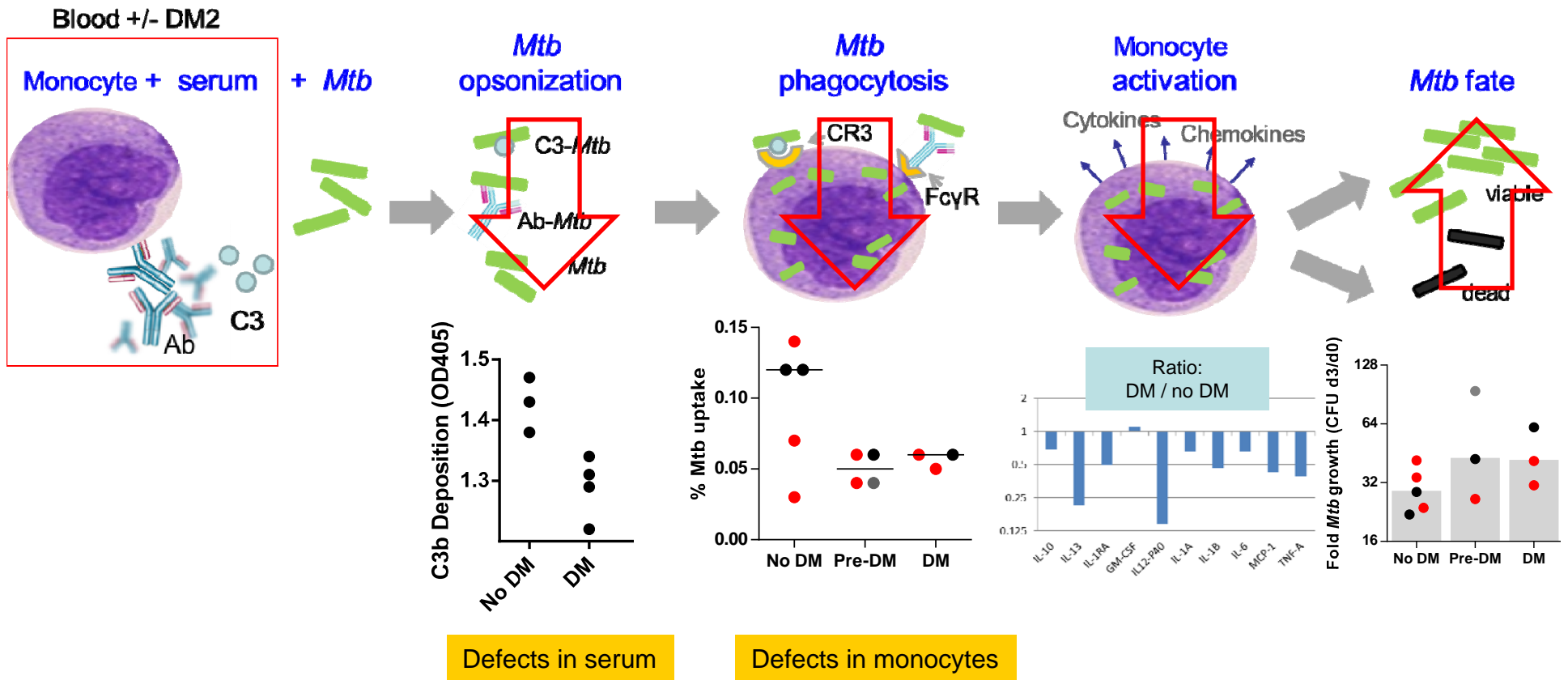
# Epidemiology studies

- Nearly 40% of the TB patients have DM
  - Texas: 4% previously unaware of DM
    - Not a "transient hyperglycemia"
  - Mexico: 21% previously unaware
    - Transient hyperglycemia? Or being a "male"?
      - TB clinic → new DM diagnosis
- History of DM
  - Aware for median = 7 years
    - Missed opportunity for TB prevention
    - 66% poorly-controlled
- **Gap:** Stratify DM-LTBI patients by TB risk?
  - Epidemiology + HbA1c + *Mtb* + Immunity + metabolism

# Basic science studies

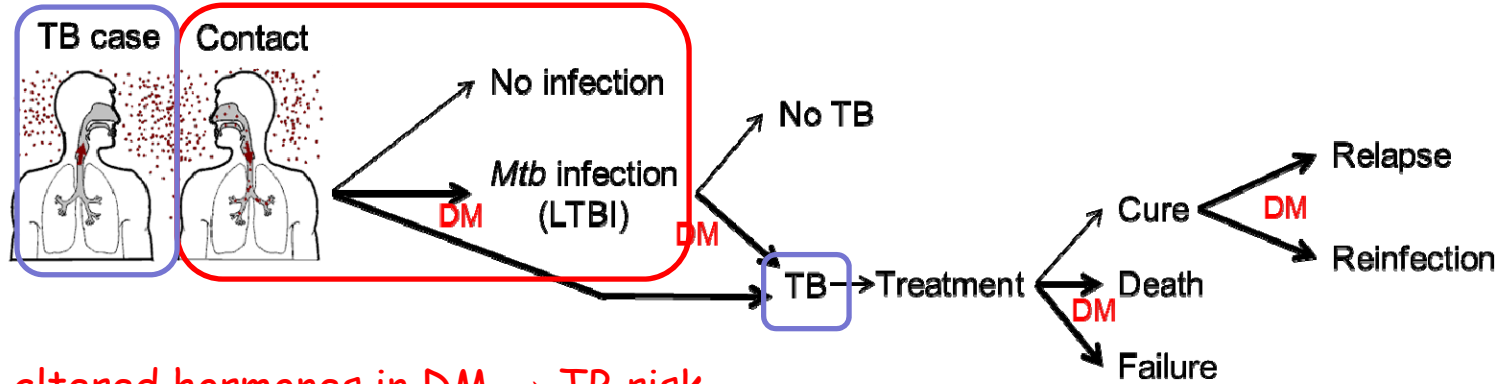


# Monocyte responses to *Mtb* in TB-naive or LTBI+ +/-DM2



Gomez et al, Tuberculosis, 2013; Stew et al, Tuberculosis, 2013; Restrepo et al., PlosONE, 2014; Restrepo & Schlesinger, Tuberculosis, 2014; Restrepo & Schlesinger, Diab Res Clin Prac, 2014; Restrepo et al, unpublished observations

# Other and upcoming studies



## Role of altered hormones in DM → TB risk

- South Texas and South Africa
  - K. Ronacher, L. Schlesinger, G. Walzl
  - NIH-NIAID US - South Africa



## TB-DM epidemiology in Texas-Mexico border:

- Changes 10 years later?
- Impact of immigration?

## Improved TB or TB-DM treatment outcomes:

- Host-directed therapy (metformin)
- Immuno-metabolism





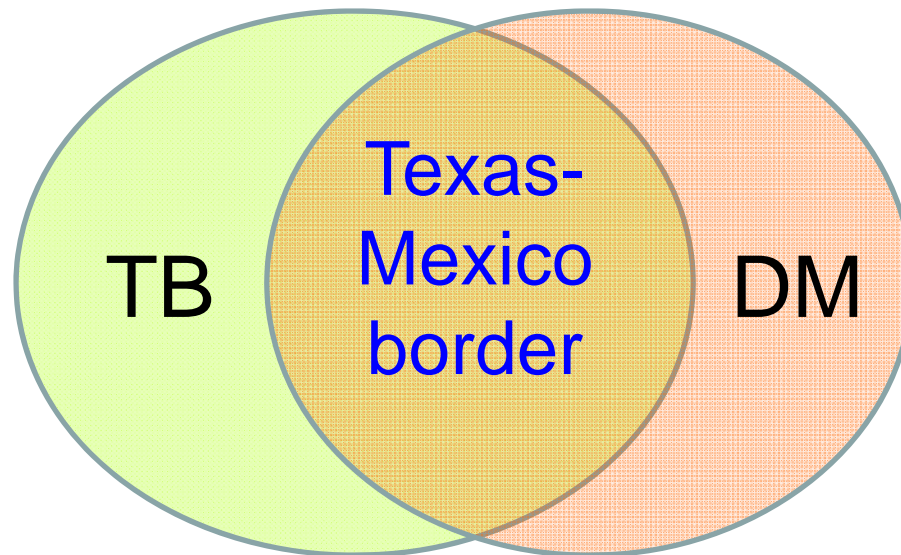
# Concluding remarks

## Texas-Mexico border:

- Medically underserved communities
- Severe health disparities
- Ideal for studies on **TB** and/or **diabetes** and/or **obesity**

## Our studies on TB and DM will continue to help address knowledge gaps:

- Stratify risk among millions of DM patients with LTBI?
  - Algorithms **Epidemiology + Metabolism + Immunology**
  - Stratified bi-directional screening TB  $\leftrightarrow$  DM with "plan of action"



# Current Collaborations/Acknowledgements

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- Albesa Salinas
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## Stellenbosch University

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- Dr. Gerhard Walzl

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