

Time	Wednesday 8th			Thursday 9th				Friday 10th				
	SLAMTB	C2B2		SLAMTB		C2B2		SLAMTB	C2B2			
7:00-8:00	Registration			Registration								
8:00 - 8:15	Welcome VC2B2/SLAMTB			Rosario Duran (Uruguay), <i>Discovering new members of the Corynebacterial cell division machinery using interactomics approaches</i>		Plenaria Biología Sintética Agustino Martínez - Mexico		Brian Weinrick (USA), <i>Development of a mouse model of tuberculosis that generates human-like pathology</i>		Plenaria Biotecnología y Microorganismos - Gerard Terrada España		
8:15 – 8:30	David Russell (USA), <i>Failed immune control need not be the driver of tuberculosis progression</i>											
8:30 – 8:45												
8:45 – 9:00												
9:00 – 9:15	Marisol Ocampo (Colombia), <i>The challenge of developing a synthetic vaccine against tuberculosis</i>		Plenaria Clara Bermudez Colombia		Luciana Balboa (Argentina), <i>Targeting immunometabolism in host defense against Mycobacterium tuberculosis</i>		Plenaria Duverney Chaverra Colombia					
9:15 – 9:30												
9:30 – 9:45	Marcela Henao-Tamayo (USA), <i>Mucosal exposure to non-tuberculous mycobacteria elicits B cell-mediated immunity against pulmonary tuberculosis</i>			Charla técnica Scientific Products				Charla técnica				
9:45 – 10:00	Mauricio Rojas (Colombia), <i>Analysis of exhaled breaths using the Exhaled Breath Condensate Collection Device (RTube™)</i>											
10:00 – 10:15												
10:15-10:25	Receso - Muestra comercial y Posters											
10:25- 10:45												
10:45 -11:00												
11:00- 11:15												
11:15- 11:30	Discussion: National TB Networks (section in spanish)		Orales A:C2B20001	Orales B: C2B20030	Jacobus H de Waard (Ecuador), <i>Infection by non-tuberculous mycobacteria; a nightmare for the surgeon, the infectologist, the pulmonologist and the disinfection specialist</i>		Orales A: C2B20051	Orales B:C2B20076	Oral Session SLAMTB II		Orales A: C2B20079	Orales B:C2B20044
11:30-11:45			Orales A:C2B20050	Orales B:C2B20094			Orales A: C2B20141	Orales B:C2B20063			Orales A: C2B20031	Orales B:C2B20035
11:45-12:00			Orales A:C2B20072	Orales B:C2B20077	Amador Goodridge (Panama), <i>Building knowledge for bovine tuberculosis and paratuberculosis control</i>		Orales A: C2B20037	Orales B:C2B20041	Orales A: C2B20036	Orales B:C2B20006		
12:00 - 12:15			Orales A:C2B20060	Orales B:C2B20039			Orales A: C2B20055	Orales B:C2B20057	Orales A: C2B20027	Orales B:C2B20022		
12:15 - 12:30			Orales A:C2B20033	Orales B:C2B20059	Orales A:C2B20082	Orales B:C2B20078	Orales A: C2B20029	Orales B:C2B20043				
12:30 - 14:00	Almuerzo libre											
14:00 - 14:15	Mariana Gabriela López (Spain), <i>What can genomics do for TB control?</i>		Plenaria Agricultura y Vegetal Ariel Orellana Chile		Technical talks (ANNAR/Qiagen and Rochem)		Plenaria Ciencias Ómicas y Bioinformática Carolina de la Torre España		Stéphanie Boisson-Dupuis (USA), <i>Novel genetic defects underlying susceptibility to tuberculosis in Human</i>		Plenaria Ambiental y Enseñanza Pablo Gago Ferrero España	
14:15 - 14:30												
14:30 - 14:45	Martha Inirida Guerrero-Guerrero (Colombia), <i>Classical and molecular study of Colombian M. leprae</i>		Plenaria Luis Vesga Colombia				Plenaria Edgar Reyes Colombia		Andrés Augusto Arias Sierra (Colombia), <i>Inherited human TNF deficiency undermines macrophages respiratory burst and underlies</i>		Plenaria German Zafra	
14:45 - 15:00												
15:00 - 15:15												
15:15 - 15:30												
15:30 - 15:45	Charla Técnica ADN Internacional			Plenaria Laura Kamenetzky Argentina			Oral Session SLAMTB III		Orales A:C2B20086	Orales B:C2B20017		
15:45 - 16:00									Orales A:C2B20005	Orales B:C2B20032		
16:00 - 16:15									Orales A:C2B20075	Orales B:C2B20007		
16:15 - 16:30									Orales A:C2B20109	Orales B:C2B20018		
16:30 - 16:45	Receso - Muestra comercial y Posters											
16:45 - 17:00												
17:00 - 17:15	Oral Session SLAMTB I		Orales A:C2B20093	Orales B:C2B20064	SLAMTB Assembly		Orales A:C2B20068	Orales B:C2B20071	Rogelio Hernández Pando (Mexico), <i>Immune endocrine regulation during experimental pulmonary tuberculosis, the complex participation of steroid and hypophysis hormones</i>			
17:15 - 17:30			Orales A:C2B20070	Orales B:C2B20097			Orales A:C2B20103	Orales B:C2B20102				
17:30 - 17:45			Orales A:C2B20108	Orales B:C2B20026			Orales A:C2B20004	Orales B:C2B20008				
17:45 - 18:00			Orales A:C2B20105	Orales B: C2B20065			Orales A:C2B20002	Orales B:C2B20020				
18:00 - 18:15	Orales A:C2B20048		Orales B:C2B20095		Orales A:C2B20048		Orales B:C2B20095		CLOSURE C2B2/SLAMTB			
18:15 - 18:30	Cocktail/cultural event				Orales A:C2B20048		Orales B:C2B20095					
18:30 - 18:45												
18:45 - 19:00												



V  
Congreso Colombiano de  
Bioquímica y Biología Molecular



SLAMTB  
SOCIEDAD LATINOAMERICANA DE TUBERCULOSIS  
Y OTRAS MICOBACTERIOSIS

El comité organizador del V Congreso Colombiano de Bioquímica y Biología Molecular C2B2 y la XI Reunión de la Sociedad Latinoamericana de Tuberculosis y otras Micobacteriosis SLAMTB, certifican que el trabajo titulado:

## **“XPERT MTB/RIF ULTRA IN STOOL SAMPLES FOR THE DIAGNOSIS OF PEDIATRIC PULMONARY TUBERCULOSIS”**

de autoría de **Jhonatan Vélez, Teresa Realpe, Nataly Alvarez, Claudia Beltrán, Andrea Restrepo, Juan Gonzalo Mesa, Alejandro Diaz, Dione Benjumea Bedoya, Jaime Robledo**, fue presentado en modalidad de poster, en el V C2B2 y la XI SLAMTB en la ciudad de Bucaramanga, del 8 al 10 de noviembre del 2023.

En constancia firman el 15 de noviembre de 2023

Dra. Adriana Umaña Perez  
Presidente comité organizador  
VC2B2

Dra. Stelia Carolina Mendez  
Presidente comité científico  
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Dr. Carlos Yesid Soto  
Presidente comité organizador  
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Dra. Luciana Balboa  
Presidente comité científico  
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## Xpert MTB/RIF Ultra in Stool Samples for the Diagnosis of Pediatric Pulmonary Tuberculosis

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### Introduction

Tuberculosis (TB) is a significant global infectious disease with 11 million cases in 2021, per the World Health Organization (WHO). Children represent 11% (1.1 million) of cases and 15% (224,000) of TB-related deaths (1). Childhood TB is often missed due to complex diagnoses, non-specific symptoms, and invasive sampling. The WHO-endorsed Xpert MTB/RIF Ultra method enhances diagnosis, including stool samples to detect genetic material after respiratory secretions are swallowed by children (2). The aim of this study was to determine the utility and concordance of stool specimens compared to respiratory specimens for the microbiological confirmation of pediatric pulmonary tuberculosis by using the Xpert MTB/RIF Ultra system.

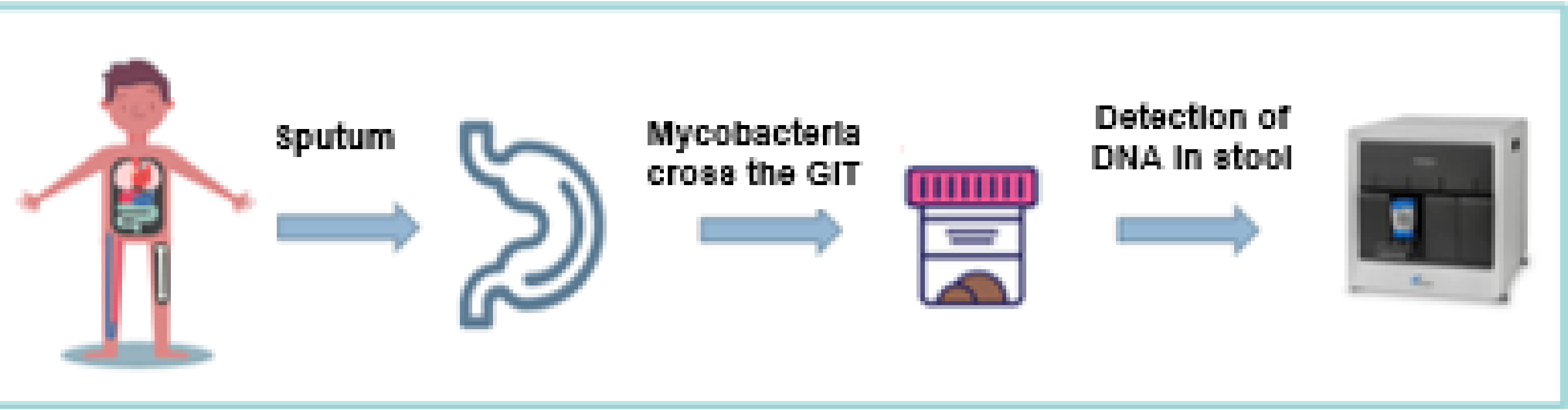


Figure 1. Detection of DNA in stool

### Methodology

Using a cross-sectional study, children with a presumptive diagnosis of active pulmonary TB were studied. The initial diagnosis was based in clinical signs and symptoms and associated risk factors. Two (spontaneous or induced) sputum samples, two gastric aspirates plus one stool specimen were obtained. Molecular detection using Xpert MTB/RIF Ultra and cultures in liquid medium were performed for all samples. Concordance, sensitivity and specificity of stools specimens were compared to respiratory specimens.

### Results

A total of 54 patients with presumed pulmonary TB were enrolled. The mean age was 5 years (0-15), 28 (51.9%) were females, 23 (42.6%) had cough as the most frequent symptom. Demographic information are showed in table 1.

Table 1. Demographic and clinical characteristics of the children		
	n (54)	%
<b>Gender</b>		
Female	28	51.9
Male	26	48,1
	<b>Me</b>	<b>IQR</b>
<b>Age</b>		
	5	25 (3.75) 50 (5.00) 75 (6.00)
<b>Contact history</b>		
	32	59,3
<b>Cough</b>		
	23	42.6
<b>Weightloss</b>		
	16	29.6
<b>Night sweats</b>		
	19	35.2
<b>Fever</b>		
	21	39.6
<b>BCG vaccination</b>		
	48	88.9
	<b>Me</b>	<b>IQR</b>
<b>Weight</b>		
	13.3	25 (10.0) 50 (13.3) 75 (14.7)

Me: Median, IQR: interquartile range

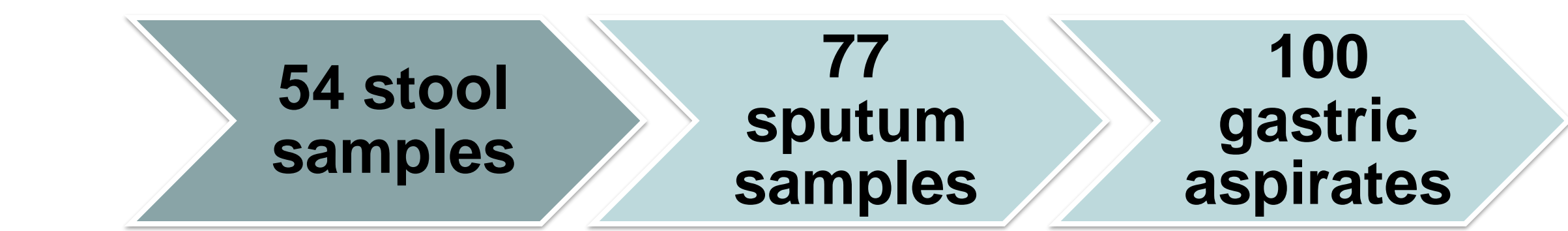


Figure 2. Number of samples evaluated in the study

Table 2. Comparison between Xpert Ultra and liquid culture in stool and respiratory samples

Tests/Samples	Xpert results	Culture results		Total
		Positive	Negative	
Stool samples	Positive	2	10	12
	Negative	1	41	42
Respiratory samples	Positive	3	7	10
	Negative	0	44	44
Total		6	102	108

Table 3. Diagnostic performance of Xpert in respiratory and stool samples using culture as a reference standard

Tests	Diagnostic performances			
	Sensitivity % (95%CI)	Specificity % (95%CI)	PPV % (95%CI)	NPV % (95%IC)
Respiratory samples Xpert	100 (43.9-100)	86.2 (74.3-93.2)	30 (10.8-60.3)	100 (43.8-100)
Stool Xpert	100 (43.9-100)	82.4 (69.8-90.4)	25 (8.9-53.2)	100 (91.6-100)

CI: confidence interval, PPV: positive predictive value, NPV: negative predictive value

Comparing Xpert Ultra in respiratory samples versus Xpert Ultra in stool, a Kappa index of 0.43 95%CI (0.14-0.72) was obtained, indicating moderate agreement.

### Discussion

With the well-known limitations in detecting pediatric pulmonary TB in respiratory samples, stool samples can serve as an effective alternative for the detection of this disease. In this study, we have demonstrated that the use of Xpert Ultra in stool samples has a similar performance to that of respiratory samples, consistent with other studies that have reported comparable findings (3). Xpert Ultra had a sensitivity of 100% and a specificity of 82.4% (Table 3) in detecting MTB in stool samples, compared to the reference standard. These results are consistent with findings from a recent meta-analysis that reported a sensitivity of 100% and a specificity of 89% (4). Furthermore, the Xpert Ultra test is a simple and effective alternative in situations where children cannot provide a respiratory sample (5). Taken together, our results suggest that Xpert MTB/RIF Ultra in stool samples is a supplementary alternative for the microbiological confirmation of pediatric pulmonary TB. However, further studies with larger samples and multiple baseline variables are required to support our findings.

### References

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- Kay, A. W., Ness, T., Verkuijl, S. E., Viney, K., Brands, A., Masini, T., ... & Takwoingi, Y. (2022). Xpert MTB/RIF Ultra assay for tuberculosis disease and rifampicin resistance in children. Cochrane Database of Systematic Reviews
- Orikiriza, P., Nansumba, M., Nyehangane, D., Bastard, M., Mugisha, I. T., Nansera, D., & Bonnet, M. (2018). Xpert MTB/RIF diagnosis of childhood tuberculosis from sputum and stool samples in a high TB-HIV-prevalent setting. *European Journal of Clinical Microbiology & Infectious Diseases*, 37, 1465-1473

### Acknowledgments



Program code: 221384266993