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Sidra Medicine

MENA Microbiome

From Biomarkers Discovery to Microbiota-based Therapeutics

Date: 28-29 September 2024

Venue: The Plaza Doha

1:00 – 3:30 pm	**Session V: Microbiome in Women and neonatal Health** Learning objectives: ■ List the major vaginal microbes in healthy women ■ Explain the major microbiome changes during pregnancy ■ Describe the role of the microbiome in prematurity Session Chairs: ■ Prof Johnny Awwad, Chair of Women's Services, Division Chief, Reproductive Medicine, Sidra Medicine ■ Dr. Lolwa Al Ansari, Senior Consultant and Head of OB/GYN, Al Wakra Hospital, Hamad Medical Corporation	
2:20 – 2:45 pm	Dr. Jaime Garcia Mena Department of Genetics and Molecular Biology Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico	Maternal immunoglobulins differentially bind the bacterial community in human colostrum and stool of breastfed neonates.

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CERTIFICATE OF APPRECIATION

Presented to

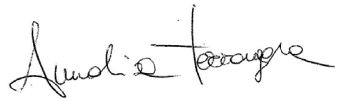
Dr. Jaime Garcia Mena

In recognition of their valuable contribution as a Speaker

*at the **MENA Microbiome conference: From Biomarker Discovery to Microbiota-based Therapeutics** ,*

held on 28-29 September in Doha, Qatar.

Dr. Souhaila Al Khodor
Event Co -Chair



Dr. Annalisa Terranegra
Event Co -Chair

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Agenda

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All Sessions Day 1: September 28, 2024 Day 2: September 2

8:00 am – 12:00 pm	**Across Organs** Learning objectives: Describe the microbiome composition of a healthy gut. Summarize the different members of the gut microbiome. Evaluate the application of systems biology approaches to study the microbiome. Session Chairs: Prof. Hilal Lashuel, Advisor to the Chairperson & Executive Director of RDI, Qatar Foundation Dr. Khalid Fakhro, Chief Research Officer, Sidra Medicine	
8:00 – 8:45 am	Prof. Peer Bork Director of EMBL Heidelberg, Germany	Keynote Lecture II: Gut microbiome analysis for human health and wellbeing
8:45 – 9:10 am	Prof. Emmanuelle Maguin Director, French National Institute for Agriculture, Food, and Environment (INRAE), France	The food and microbiome interplay for health
9:10 – 9:35 am	Dr. Amelia McGuinness Associate Research	The Microbiome-Gut-Brain Axis: The Bacteriome and Beyond

9:35 – 10:00 am	Attending Pediatric Urologist, Division of Urology Children's Hospital of Philadelphia, PA, USA	The Gut-Kidney Axis of Kidney Stone Disease: A Pathway to Novel Diagnostics and Therapeutics
10:00 – 10:30 am	Coffee break Poster viewing and judging	
	Session Chairs: Dr. Mamoun Elawad, Division Chief of Pediatric Gastroenterology and Nutrition, Sidra Medicine Dr. Amine Zorgani, Consultant, Biocodex Microbiota Institute, Belgium	
10:30 – 10:55 am	Prof. Nahla Mansour Professor of Microbial Molecular Biology National Research Center, Egypt	Gut Microbiome Analysis in Type 2 Diabetes Egyptians: Towards Personalized Medicine
10:55 – 11:00 am	Miss Shaikha Al Abduljabbar Research Specialist, Precision Nutrition, Sidra Medicine, Qatar	Manipulation of the microbiome through diet can improve clinical outcomes: A story from an IBD-Autistic patient at Sidra Medicine

	UAE University, UAE	approaches
11:25 – 11:50 pm	Prof Mohammad Issa El Mouzan Professor of Pediatrics, College of Medicine, King Saud University, Saudi Arabia	Gut virome and Mycobiome in Saudi pediatric population
11:50 – 12:00 pm	Ms. Daliya Abubakar Research specialist Microbiome and Biomarker Discovery Sidra Medicine, Qatar	Short oral talk: Profiling of the Blood Virome in Children with Idiopathic Nephrotic Syndrome
12:00 – 1:00 pm	Lunch Break Poster viewing and judging	
1:00 – 3:35 pm	**Session V: Microbiome in Women and neonatal Health** Learning objectives: List the major vaginal microbes in healthy women Explain the major microbiome changes during pregnancy Describe the role of the microbiome in prematurity Session Chairs: Prof Johnny Awwad, Chair of Women's Services, Division Chief, Reproductive Medicine, Sidra Medicine	

1:00 -1:25 pm	Director of Institute of Reproductive and Developmental Biology, Professor of Obstetrics and Gynaecology Imperial College London, UK	Microbiome aspects of fertility, miscarriage, and preterm birth
1:25 – 1:50 pm	Dr. Maha Al Asmakh Department Head of Biomedical Sciences Associate Professor, Qatar University, Qatar	Salivary Microbiome in pregnancy
1:50 – 2:00 pm	Mrs Maysa Niazy Department of Pathobiology, University of Guelph, Canada	Short oral talk: Know thy neighbours: Latent topics for studying vaginal microbial communities
2:00 – 2:25 pm	Prof. Erika Isolauri Professor of Pediatrics Head of the Department of Clinical Medicine, Faculty of Medicine University of Turku, Finland	Resilience to risk exposures in the preterm child through the microbiome

	Children's Hospital of Philadelphia, PA, USA	Microbiome Analysis to Understand Infectious Diseases
2:50 – 3:15 pm	Dr. Ibrahim Hassan Senior attending Physician, Microbiology and Virology, Sidra Medicine, Qatar	Antimicrobial stewardship and microbiome in the pediatric population: Where are we?
3:15 – 3:25 pm	Miss Noora Al Mohannadi Research specialist Microbiome and Biomarker Discovery Sidra Medicine, Qatar	Short oral talk: Oral microbiome and immunity in women with gestational diabetes mellitus: A pilot study
3:25- 3:35 pm	Dr. Jaime Garcia Mena Department of Genetics and Molecular Biology Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico	Short oral talk: Maternal immunoglobulins differentially bind the bacterial community in human colostrum and stool of breastfed neonates.
3:35 – 4:00 pm	Coffee Break Poster viewing and judging	

4:00 – 5:30 pm	Screening: The Invisible Extinction	School, NJ, USAMaria Gloria Dominguez Bello Professor, Department of Biochemistry and Microbiology, Rutgers School of Environmental and Biological Sciences, NJ, USA
5:30 – 5:45 pm	Closing remarks for Day 2 & Posters Award Announcement	MENA Microbiome conference Chairs

Sidra Medicine

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Maternal immunoglobulins differentially bind the bacterial community in human colostrum and stool of breastfed neonates.

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In newborns, the successional establishment of the primordial microbiota strains in the gut is an interesting topic of investigation, where the IgA1, IgA2, IgM, and IgG immunoglobulins provided by the mother during breastfeeding play a primordial role. The objective of this work was to explore the functional role of the colostrum's maternal immunoglobulins, which bind differently, a diverse bacterial community in the intestine of breastfed neonates. We sequenced V3-16S rRNA gene libraries prepared with DNA extracted from single IgA1, IgA2, IgM, and IgG fluorescence-activated cell sorting fractions from meconium or colostrum. Our results show that in colostrum, the bacteria are already differentially bound by these immunoglobulins. We determined that IgA2 and IgM bind alfa and beta Proteobacteria at early breastfeeding stages, which might stimulate the immune system in the gut of neonates. In addition, it was found that IgG mostly binds facultative anaerobes of the Firmicutes phylum, which are reported as part of the human milk microbiota and pioneer elements of the neonatal gut. In the case of the neonatal stool, the immunoglobulins supplied by the mother, bind a wide diversity of bacteria. For example, IgA2 and IgM bind more bacteria of the phylum Bacteroidetes in comparison to what IgG binds. Bacteroidetes and some Firmicutes have been reported as late colonizers in the successional population of the neonatal gut since they can produce short-chain fatty acids like propionate and butyrate. Our results support the current view that joint microbial and immunoglobulin transference is fundamental for the normal development of the neonate's immune system and the establishment of a functional gut microbiota. Work financed by Fondo SEP-Cinvestav, No. 174, Consejo Nacional de Ciencia y Tecnología CONACYT-163235, INFR-2011-01, and CONACyT FORDECYT-PRONACES/6669/2020_Programa Presupuestario F003-Ciencia de Frontera 2019.