

8th ESMRMB-GREC meeting **October 4th, 2023** **BASEL, Switzerland**

ESMRMB-GREC Meeting: Scientific Program

Date: October 4th 2023

Meeting venue: Congress Center Basel, Messeplatz 1 - 4058 Basel, Switzerland

Certification: Participants will receive a certificate of attendance

Enrolment: The meeting in presence is designed for scientists and consultants.

Local Organisation: Carlo C. Quattrocchi (IT)

After an extraordinary year of achievements, it is our pleasure to invite you to the 8th ESMRMB-GREC meeting, to be held in Basel, Switzerland, during the ESMRMB Pre-Congress day.

Introduction:

This meeting is designed as a unique context aimed at sharing ideas and data on MRI contrast agents research and possible gadolinium toxicity after the administration of gadolinium-based contrast agents (GBCAs). Joint international efforts will remain essential to optimize diagnostic efficacy and improve patient safety in MR imaging. Since 2016, the ESMRMB-GREC has adapted the contents of the discussion to current hot topics and has continuously improved its influence on the clinical and pre-clinical role of gadolinium-based contrast agents.

This 8th GREC meeting will cover topics related to the four missions of the group: 1. Clinical indications and safety of GBCA-enhanced MRI; 2. The chemical approach to improved MRI-contrast agents; 3. Alternative methods to GBCA-enhancement using artificial intelligence methods; 4. Emissions of GBCAs into the aquatic environment.

As a working group of experts with multidisciplinary background, we support the MR community with continuous education, information and scientific updates on the use and clinical applications of GBCAs.

Objectives:

- To share evidence-based state-of-the-art information on specific hot and emerging topics in GBCA-enhanced MR imaging
- To promote the dissemination of knowledge by means of papers to be published on behalf of the the ESMRMB-GREC working group
- To discuss on research activities and research funding opportunities

Wednesday, 04 October 2023

08:00-08.05	Welcome and practical meeting issues <i>Aart J. Nederveen, NL & Carlo C. Quattrocchi, IT</i>
08:05-08:30	2022-2023 ESMRMB-GREC achievements Candidates for the Chair position 2023-2026 <i>Carlo C. Quattrocchi, IT</i>
Mission 1 Session 1	<i>Clinical Indications and Safety of GBCA-enhanced MRI</i> <i>Moderator: Alex Rovira</i>
08:30-08:45	Gadolinium-based contrast agents in the diagnosis and monitoring of the ear and internal auditory canal. (Marinella Neri, IT; Andrea Falzone, IT)
08:45-09:00	GREC Discussion
09:00-09:15	Gadolinium use reduction strategies in the clinical setting: state-of-the-art – ESUR-CMSC joint initiative (Ilona A. Dekkers, NL)
09:15-09:30	ESUR-CMSC and ESMRMB-GREC Joint Working Group on GBCA Dose Reduction in MRI: Technical MRI optimisation (Aart J. Van der Molen, NL)
09:30-09:50	GREC Discussion
09:50-10:00	Multiorgan and plasma metabolomics for the investigation of the biological effects of gadodiamide and gadoteridol in healthy mice (Eliana Gianolio, IT)
10:00-10:10	Evaluating Gadolinium-Induced Histopathological Alterations Related to Small Fiber Neuropathy and Gadolinium Clearance Following Repeated GBCA Administration in Rats (Hubertus Pietsch, DE)
10:10-10:20	Investigation of the gadolinium distribution in human nerves by mass spectrometric imaging (Christine Verlemann, DE Astrid Jeibmann, DE and Uwe Karst, DE)
10:20-10:30	Disability and long-term clinical outcome in Patients with Multiple Sclerosis and evidence of gadolinium retention in the brain (Sirio Coccozza, IT)
10:30-10:40	Imaging of meningeal lymphatics with standard clinical MRI and intravenous GBCA administrations (Michael Stringer, UK)
10:40-10:50	MultiCriteria Decision Analysis (MCDA) model for GBCA (Anand Bherwani, USA; Francois Tranquart, FR)
10:50-11:15	Questions and remarks
11:15- 11:45	Coffee break
Mission 2	<i>The chemical Approach to Improved MRI-Contrast Agents</i> <i>Moderator: Eliana Gianolio, IT</i>

11:45-12:00 Seeking for Innovation with Magnetic Resonance Imaging Paramagnetic Contrast Agents: Relaxation Enhancement via Reversible, Weak, Electrostatic/Cation-p Interactions with Protonated Amino Groups or Endogenous Macromolecules (Lorenzo Palagi, IT)

12:00-12:10 GREC Discussion

12:10-12:20 The late phase clinical development program for gadopluatran - a novel tetrameric GBCA (Petra Palkowitsch, DE)

12:20-12:30 Development and Evaluation of Magnetic Properties of a New Manganese (II)-dithiocarbamate complexes as MRI Contrast Agents (Alessandra Boschi, IT; Petra Martini, IT)

12:30-12:40 Evaluation of Iodinated contrast media as MRI-CEST contrast agents and comparison with Gadolinium (Dario Longo, IT)

12:40-13:00 High Relaxivity gadopicles for diagnostic MRI: the PICTURE and PROMISE phase III clinical trials (Jean-Sebastien Raynaud, FR)

13:00-13:30 Questions and remarks

13:30- 14:30 Lunch time and open discussion

Mission 3 *Alternative Methods to GBCA-enhancement (the AI approach)*

Moderator: Carlo A. Mallio, IT

14:30-14:45 Reduction of gadolinium with Artificial Intelligence: where do we stand and what is the potential (Katerina Deike-Hoffmann, DE)

14:45-15:00 GREC Discussion

15:00-15:15 Deep Learning for Post-Contrast T1-Weighted Brain MRI Synthesis (Juan A. Hernandez-Tamames, NL)*

15:15-15:30 Interchangeability of Synthesized Low-Dose MR Images With Original Full-Dose Post-Contrast Images (Robert Haase, DE)

15:30-15:45 Increasing Contrast Agent Efficacy in MRI through Deep Learning trained on Synthetic Data (Alberto Fringuello Mingo, IT)

15:45-16:00 Questions and remarks

16:00- 16:15 Coffee break

Mission 4 *Emissions of GBCAs into the aquatic environment*

Moderator: Gerard Stroomberg, NL

16:15-16:30 Green Neuroradiology: a map of european initiatives to reduce gadolinium emissions in the environment (Alex Rovira, ES)

16:30-16:45 GREC Discussion

16:45-17:00 Teratogenic risk associated to gadolinium: updates on Hydra vulgaris regeneration assay (Carlo C. Quattrocchi, IT; Massimiliano Scalici, IT)

17:00-17:15	Elemental analysis of the uptake of gadolinium-based contrast agents and their analogues in plants and algae (Torben Maas, DE; Uwe Karst, DE)
17:15-17:30	Relationship between GBCA administration and wastewater anthropogenic gadolinium (Mihály Braun, HU)
17:30-17:40	Distribution of anthropogenic gadolinium in surface and ground waters of Poland (Irena Wysocka, PL)*
17:40-17:50	Biological effects of gadolinium in waste water: the importance of the context (Giovanni Libralato, IT)*

* recorded video presentation

17:50-18:00 Questions and remarks

Adjourn: Enjoy 2023 ESMRMB congress and see you next year in Barcelona on October 2-5 2024!

ESMRMB-GREC Chairs

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ESMRMB-GREC Senior Faculty

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Henning Richter, CH
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Rosa Freitas, PT
Silvio Aime, IT
Tarek Yousry, UK
Tobias Granberg, SE
Uwe Karst, DE
Giovanni Libralato, IT
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Robert Haase, DE
Marcel Macke, DE
Lorenzo Palagi, IT
Christine Verlemann, DE
Torben Maas, DE
Fabio Doniselli, IT
Michael Stringer, UK
Ruben van Oosterhoudt, NL
Mihály Braun, HU
Irena Wysocka, PL
Petra Martini, IT

ESMRMB-GREC Industry Delegates

Cornelia Harz – Bayer AG
Hubertus Pietsch – Bayer AG
Petra Palkowitsch – Bayer AG
Alberto Fringuello Mingo – Bracco
Erik Bruno – Bracco
Eugenia Lepera – Bracco
Anand Bherwani – GE HealthCare
Francois Tranquart – GE HealthCare
Jean Sebastien Raynaud – Guerbet
Eric Lancelot – Guerbet



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