GADOLINIUM/GBCA DEPOSITION AND RETENTION IN OTHER ORGANS

Localization, Kinetics and Form involved in Gd Retention
A GBCAs Comparison

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Conflicts of Interest

Guerbet employee.
Evidence of Presence of Gadolinium in Various Tissues

**Brain**
Xia et al. 2010
McDonald et al. 2015
Kanda et al. 2015 (...)

**Eyes**
Barker-Griffith et al. 2010

**Liver, lung, kidney, heart**
Sanyal et al. 2011
Swaminathan et al. 2008
Maximova et al. 2016

**Skin**
Thakral & Abraham 2009
Birka et al. 2015 (...)

**Bones**
White et al. 2006
Darrah et al. 2009
Lord et al. 2017/2018 (...)

**TECHNIQUES**
- ICP-MS
- LA-ICP-MS
- SEC-ICP-MS
- HILIC-ICP-MS
- SEM-EDX
- TEM-EDX
- X-Ray fluorescence (...)

« Gadolinium »

Where?
When?
How long?
In which form?
Localization, Kinetics and Forms with GBCAs comparison

Localization
- Gadodiamide
- Gadobenate
- Gadoterate
- Saline

Kinetics
- Non-Ionic Linear GBCA
- Ionic Macrocyclic GBCA

Forms
- Ionic Macrocyclic GBCA
- Non-Ionic Linear GBCA

Correlation between the thermodynamic stability and the residual excretion phase of GdCAs
- Higher thermodynamic stability → faster residual excretion phase
- Lower thermodynamic stability → longer residual excretion phase

Time-dependent gadolinium concentrations in murine bone
Recommendation for Clinical / Non-Clinical Studies

“A good beginning makes a good ending”
(A good protocol makes a good interpretation)

➢ Do not only focus on Gd concentration and/or visibility
➢ Include Localization, Form and Kinetics
➢ Compare GBCAs with each others

Warning on wording:
❖ Gd deposition, Gd presence, Gd retention, Gd accumulation?
❖ Dissociated Gadolinium or complex of GBCA?

« Gadolinium »

Where?

When? ↔ How long?

In which form?