

Fetuin-a-based theranostics in ectopic calcification

Citation for published version (APA):

Dzhanaev, R. (2023). *Fetuin-a-based theranostics in ectopic calcification*. [Doctoral Thesis, Maastricht University, RWTH Aachen University]. Maastricht University. <https://doi.org/10.26481/dis.20230912rd>

Document status and date:

Published: 01/01/2023

DOI:

[10.26481/dis.20230912rd](https://doi.org/10.26481/dis.20230912rd)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

www.umlib.nl/taverne-license

Take down policy

If you believe that this document breaches copyright please contact us at:

repository@maastrichtuniversity.nl

providing details and we will investigate your claim.

Propositions belonging to the thesis:
Fetuin-A-Based Theranostics in Ectopic Calcification

by Robert Dzhanaev

1. Soft-tissue calcification is a significant clinical challenge that lacks effective therapeutic options. (this thesis)
2. Early stages of ectopic calcification cannot be detected using conventional techniques. (this thesis)
3. Calcification probes generated by fusing plasma glycoprotein fetuin-A with fluorescent proteins represent non-toxic and sensitive tools enabling the precise detection of microcalcified lesions in cell cultures and tissue samples. (this thesis)
4. Fetuin-A-based fusion proteins bearing RANKL provide a promising tool for targeted osteoclast differentiation at the sites of ectopic calcification. (this thesis)
5. The estimation of the daily calcium requirement should take into account not only the amount of calcium consumed, but also its bioavailability. (Guéguen L and Pointillart A. *J Am Coll Nutr.* 2000)
6. Ectopic calcification evolved as a defensive mechanism against invading pathogens that turned pathologic due to modern lifestyle. (Frink in *Inflammatory Atherosclerosis: Characteristics of the Injurious Agent.* 2002)
7. The presence of giant multinucleated TRAP-positive cells in advanced atherosclerotic plaques suggests a possible cell therapy of calcified lesions. (Jeziorska et al. *Virchows Arch.* 1998)
8. Early detection of small pathologic calcifications using fetuin-A-based probes may improve the prospect of calcification-associated disease. (societal impact)