

Placental hypoxia

Citation for published version (APA):

Vangrieken, P. (2020). *Placental hypoxia: vascular and mitochondrial toxicity*. [Doctoral Thesis, Maastricht University]. Maastricht University. <https://doi.org/10.26481/dis.20200709pg>

Document status and date:

Published: 01/01/2020

DOI:

[10.26481/dis.20200709pg](https://doi.org/10.26481/dis.20200709pg)

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.

Stellingen

behorende bij het proefschrift

Placental hypoxia: vascular and mitochondrial toxicity

Philippe Vangrieken, Maastricht, 9 juli 2020

1. Early-onset preeclampsia-complicated placentae show several maturation markers for villous characteristics that are closer to full term placentae than to their matched idiopathic preterm group, or even exceeded that of the term group, suggesting placental accelerated villous maturity. (*this thesis*)
2. Placental accelerated villous maturation is an early effort of the placenta to increase the efficiency for diffusion of gases and nutritional compounds compensatory to the impaired placental perfusion.
3. Preeclampsia- and hypoxia-complicated placentae are associated with significant mitochondrial abnormalities, which can well be linked to the enhanced generation of oxidative stress. (*this thesis*)
4. The shift to anaerobic respiration in preeclamptic- and hypoxic-complicated placentae, may be a protective response to the impaired placental perfusion in preeclampsia thus sparing oxygen supply for the growing foetus.
5. Placental hypoxia triggers the systemic release of cytotoxic factors that cause high blood pressure and that increase vascular responsiveness. (*this thesis*)
6. Although maternal smoking during pregnancy is associated with low birthweight and preterm birth, it reduces the risk of developing preeclampsia.
7. The increased cross-sectional area of the arterial media upon exposure to placental hypoxic-conditioned media suggests that not only endothelial cells, but also alterations in smooth muscle cell morphology and/or function contributes significantly to cardiovascular problems during and after a preeclamptia-complicated pregnancy. (*this thesis*)
8. A better understanding of the complex interplay between the stressed placenta in preeclampsia and the maternal cardiovascular system may help in the identification of new serum biomarkers for the prediction of preeclampsia and in the design of new diagnostic approaches for a better clinical management.
9. The variety of separate pathological entities beside early and late-onset preeclampsia are yet to be defined and may be an explanation for the failing population-based interventions in women at high risk for developing preeclampsia.
10. The Barker hypothesis suggests that nutritional exposure in utero, which is still underestimated in PE research, has effects that last a lifetime.
11. Everyone is a genius, but if you judge a fish on its ability to climb a tree, it will live its whole life believing that it is stupid. -*Albert Einstein*-