
Curriculum Vitae

Dr. ir. F.A.D.T.G. Wagener



PERSONAL DATA

Name: Frank A.D.T.G. Wagener
Date of Birth: January 31st, 1969
Profession: Staff member and Assistant professor of Orthodontics and Craniofacial Biology-Dentistry
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EDUCATION

I teach postgraduate students in orthodontics, bachelor and master students in dentistry, biology, biomedical sciences, and molecular life sciences, and PhD students.

PhD *RadboudUMC* (in part, at *Rockefeller University* and *New York Medical College*, NY, USA),
8 November 2002 "*The heme-heme oxygenase system in inflammation*"
Promotors: Carl Figdor, Theo de Witte & Gosse Adema
MSc *Molecular Sciences*; specialisms: biotechnology & chemical biology
Wageningen University, 1994

RESEARCH DEVELOPMENT

I started my PhD research with a three-year fellowship at Rockefeller University and New York Medical College (NY, USA) at the laboratories of Nader Abraham, Atallah Kappas, and Jack McGiff (1996-1999). Here, I demonstrated that heme promotes adhesion molecule expression, whereas heme oxygenase activity attenuates this. These investigations were further expanded and developed in the departments of Tumor Immunology (Carl Figdor),

Pharmacology and Toxicology (Paul Smits & Frans Russel), and Orthodontics and Craniofacial Biology-Dentistry (Jan Schols/Hugo de Bruyn).

At our department, we focus on developing strategies to prevent congenital abnormalities (with a focus on cleft lip and palate) and scar formation following cleft surgery by better understanding the underlying mechanisms.

Interactions between genetic and environmental factors can cause cleft lip and palate formation. However, the exact molecular and cellular mechanisms remain largely unknown.

Our research group aims to prevent orofacial clefting and scar formation by harnessing inflammation and oxidative stress, targeting master transcriptional regulators driving stress-responsive cytoprotective pathways, or administering stem cells and exosomes. We address these aims experimentally using genetic and pharmacological approaches in *in vitro* assays and different model organisms (mice/rats/zebrafish). In addition, we make use of highly advanced tools (e.g. polyisocyanopeptide (PIC) hydrogels and gene modulators) in collaboration with our (inter)national network.

SELECTION OF RECENT PUBLICATIONS

1. Raterman ST, Von Den Hoff JW, Dijkstra S, De Vriend C, Te Morsche T, Broekman S, Zethof J, De Vrieze E, **Wagener FADTG**, Metz JR. Disruption of the *foxe1* gene in zebrafish reveals conserved functions in development of the craniofacial skeleton and the thyroid. *Front Cell Dev Biol.* 2023; 11:1143844.
2. Op 't Veld RC, Joosten L, Laverman P, Bronkhorst EM, Jansen JA, Walboomers XF, **Wagener FADTG**. Repeated Application and Removal of Polyisocyanopeptide Hydrogel Wound Dressings in a Splinted Full-Thickness Wound Model. *Int J Mol Sci.* 2023; 24(6):5127.
3. Créton M, **Wagener F**, Massink M, Fennis W, Bloemen M, Schols J, Aarts M, van der Molen AM, van Haaften G, van den Boogaard MJ. Concurrent de novo ZFH4 variant and 16q24.1 deletion in a patient with orofacial clefting; a potential role of ZFH4 and USP10. *Am J Med Genet A.* 2023; 191(4):1083-1088.
4. Kumari J, **Wagener FADTG**, Kouwer PHJ. Novel Synthetic Polymer-Based 3D Contraction Assay: A Versatile Preclinical Research Platform for Fibrosis. *ACS Appl Mater Interfaces.* 2022; 14(17):19212-19225.
5. Pleeging CCF, **Wagener FADTG**, de Rooster H, Cremers NAJ. Revolutionizing non-conventional wound healing using honey by simultaneously targeting multiple molecular mechanisms. *Drug Resist Updat.* 2022; 62:100834.
6. Rosero Salazar DH, van Rheden REM, van Hulzen M, Carvajal Monroy PL, **Wagener FADTG**, Von den Hoff JW. Fibrin with Laminin-Nidogen Reduces Fibrosis and Improves Soft Palate Regeneration Following Palatal Injury. *Biomolecules.* 2021; 11(10):1547.
7. Suttorp CM, van Rheden REM, van Dijk NWM, Helmich MPAC, Kuijpers-Jagtman AM, **Wagener FADTG**. Heme Oxygenase Protects against Placental Vascular Inflammation and Abortion by the Alarmin Heme in Mice. *Int J Mol Sci.* 2020; 21(15):5385.
8. Op 't Veld RC, Walboomers XF, Jansen JA, **Wagener FADTG**. Design Considerations for Hydrogel Wound Dressings: Strategic and Molecular Advances. *Tissue Eng Part B Rev.* 2020;26(3):230-248.
9. Schreurs M, Suttorp CM, Mutsaers HAM, Kuijpers-Jagtman AM, Von den Hoff JW, Ongkosuwito EM, Carvajal Monroy PL, **Wagener FADTG**. Tissue engineering strategies combining molecular targets against inflammation and fibrosis, and umbilical cord

blood stem cells to improve hampered muscle and skin regeneration following cleft repair. *Med Res Rev.* 2020 Jan;40(1):9-26.

10. Theodorou CI, Kuijpers-Jagtman AM, Bronkhorst EM, **Wagener FADTG**. Optimal force magnitude for bodily orthodontic tooth movement with fixed appliances: A systematic review. *Am J Orthod Dentofacial Orthop.* 2019;156(5):582-592.