



European Society of Endodontology

Annual Research Grant 2015

The European Society of Endodontology (ESE) awards an annual research grant to support a pilot research project or to purchase equipment for research in the field of Endodontology.

Award 10,000 Euros to Maikel Vogels



Project:

Treatment outcome of endodontically treated teeth with apical periodontitis: apical surgery of non-surgical retreatment. A randomized controlled trial with cone-beam computed tomography.

Persistent apical periodontitis is a biofilm induced inflammatory disease in a previously root filled tooth. To preserve the tooth the patient and clinician face the challenge to choose between apical surgery and non-surgical endodontic retreatment. Because of the lack of randomized controlled trials to compare the treatment outcomes between these two treatment options it is necessary to perform this study in order to provide evidence-based advice to clinicians.

In this randomized controlled trial with a follow-up period of 24 months the treatment outcome of apical surgery versus root canal retreatment in patients with persistent apical periodontitis will be compared using cone-beam computed tomography.

The radiographic change in periapical status of the treated tooth will be analysed by volumetric measurement on CBCT scans at the 1-year and 2-years recall after treatment. The clinical assessment will include intra-oral examination of the treated tooth for absence of apical periodontitis and classification of the coronal restoration. Patients will be asked to fill in questionnaires to gather data on their medical history and quality of life pre-operative, post-operative, 1-year recall and 2-years recall. The cost-effectiveness of apical surgery versus root canal retreatment will be assessed comparing the costs of both treatment options.

Career

Maikel Vogels received his dental degree in 2000 from the University of Groningen (the Netherlands). After graduation he worked as a Dental Officer in the Royal Netherlands Navy. He completed the postgraduate endodontic program at the Academic Centre for Dentistry Amsterdam (ACTA) in 2006. From 2002 until 2012, he combined a private practice with a position as a senior lecturer at the Centre of

Dentistry and Oral Hygiene of the University of Groningen. He twice received the education award 'Best teacher of the Year' from the Centre of Dentistry and Oral Hygiene of the University of Groningen. He works as an endodontist in a group practice in Hattem, the Netherlands.

Award 10,000 Euros to Ass.-Prof. Priv.-Doz. Dipl.-Ing. Hermann Agis, PhD



Project:

Effect of hypoxia and hypoxia mimetic agents on sclerostin and dickkopf-1 production in dental pulp cells and tooth slice organ cultures

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Trauma in the oral region and tooth avulsion occur frequently in children and adolescents leading to transient hypoxia in the dental pulp. Also in autologous tooth transplantation, dental pulp tissue is exposed to transient hypoxia. In these cases pulp vitality relies on its self-healing potential and the cellular responses induced by hypoxia. The Wnt signaling pathway plays a key role in hard and soft tissue healing including oral tissue regeneration and is controlled by the Wnt signaling inhibitors sclerostin and dickkopf-1. While the impact of sclerostin and dickkopf-1 in bone formation and periodontal regulation has been investigated, their role in pulp tissue and the impact of hypoxia is unknown. We hypothesized that hypoxia and hypoxia mimetic agents modulate sclerostin and dickkopf-1. To test the hypothesis we proposed the following three specific aims. We will reveal the effect of hypoxia and hypoxia mimetic agents on the production of sclerostin and dickkopf-1 in monolayer cell cultures of dental pulp-derived cells (specific aim 1) and spheroid cultures (specific aim 2) and in tooth slice organ cultures (specific aim 3).

Career

Hermann Agis received his master degree in biotechnology (Dipl.-Ing.) in 2007 at the University of Natural Resources and Life Sciences, Vienna. In 2011, he successfully finished his PhD at the Medical University of Vienna. From 2013-2014, he was a visiting scholar at the Dental School of the University of Michigan where he focused on the cellular mechanisms underlying oral soft tissue augmentation. In 2014, he received the venia dozendi (Privatdozent) from the Medical University of Vienna. Currently, he is head of the Competence Center for Tissue Engineering and Cell-Based Therapies, University Clinic of Dentistry, Medical University of Vienna. Hermann Agis' research focuses on oral tissue engineering and the cell biological mechanisms underlying regeneration. He was a member of the Young Scientist Association of the Medical University of Vienna (YSA) board from 2010-2012. In 2011, he was elected president of the YSA. He received several awards and fellowships including the Rudolf Slavicek Award of the Austrian Society of Dentistry, the Austrian Dentistry Award and the Erwin-Schrödinger Fellowship of the Austrian

Science Fund. In 2013, he was selected as Mentee for the Austrian Scientists and Scholars in North America (ASCINA) Mentoring Program. Hermann Agis has published over 26 articles in international peer-reviewed journals.