



ACTA

ANNUAL RESEARCH REPORT
2021



ACTA, the Academic Centre for Dentistry Amsterdam, is the collaborative faculty of dentistry of the University of Amsterdam (UvA) and Vrije Universiteit Amsterdam (VUA), a collaboration founded in 1984. The boards of both the UvA and VUA share responsibility for the research performed at ACTA. Among the Dutch universities, ACTA is the only independent Faculty of Dentistry in the Netherlands.

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FOREWORD

ELSBETH KALENDERIAN
DEAN



It is our pleasure to present herewith ACTA's Annual Research Report 2021.

BRUNO LOOS
DIRECTOR OF RESEARCH



For 2021, COVID-19 continued to dominate, with related impact on our professional endeavours. Research-wise, ACTA has had to scale down onsite research activities; in particular clinical research was hampered due to lockdowns, patient absence and the prioritizing of clinical progression of dental students. In this report, we present data on the impact of COVID on PhD-candidates, and their delays in their PhD-trajectories, based on a questionnaire sent out in Summer '21. Nevertheless, we are proud that in 2021, we have had 20 PhD-ceremonies. Additionally, we report on progress made in 2021 after the 2020 Research Evaluation.

BART HATTINK
SENIOR POLICY ADVISOR
RESEARCH



An important aspect of research is also valorisation, which is the process of achieving (economic and/or social) impact in the world of scientific results. Both UvA and VUA are increasingly focusing on social impact and valorisation, primarily in the field of research. Importantly, this applies to established researchers, as well as to students at ACTA, who directly make a major social impact through their contribution to oral health and thus general health. We aim to establish a close connection with the valorisation policies of VUA and UvA.

WILLEM FOKKEMA
DIRECTOR OF VALORISATION



A good example of a valorisation project is the ORANGEHealth program, which is described in more detail in this report. In this program, connections between healthcare professionals are established, so that on the one hand, the professional field acquires academic connections and on the other hand, developed innovations will find their way into the market.

In this research report, we present three examples of the broad spectrum of research within ACTA ('Featured Research'). In addition, we present data on ACTA publications, PhD-defences, and provide a link to the full list of all publications of 2021.

Finally, some illustrations are presented based on research work in 2021 (a wordcloud, an overview of research themes, and a visual representation of international research collaboration).

Despite 2021 being once again dominated by COVID-19, we are especially proud of all accomplishments of the ACTA-researchers and all others who have made tremendous efforts in oral health research and towards improving the oral and overall health of many.



RESEARCH MISSION

ACTA's research mission is: *"Research into a healthy, well-functioning and pain- and disease-free oral cavity (with all its hard and soft tissue) for our youngest to our oldest citizens: we acknowledge that oral health and good functioning will lead to a better general health and wellbeing."*

This mission leads to a strategic palette of research themes, with core concepts: prevention, function, quality of life, biology, reparation, and public health. This breadth of the oral-health related research fits well within the mission of both UvA and VUA, which are both universities with a broad focus.

As the biggest dental school in the Netherlands, it is fitting to have a leading role in broader dental and orofacial research, and to take societal responsibility for academic participation in nearly all facets of oral health and related (t)issues.

During last year, a solid base was laid for interdisciplinary research between our faculty and other faculties of UvA and VUA. Early 2021, the Research Priority Area *'Personal Microbiome Health (PMH)'* was started, with ACTA as consortium initiator, leader and administrator, in cooperation with Amsterdam University Medical Center (AUMC) and the Faculties of Science, Medicine, and Social & Behavioural Sciences from the UvA. This consortium has submitted a major grant to the "Nationale Wetenschapsagenda", again with ACTA as initiator and administrator. In addition, ACTA was working closely with AUMC through the Oral & Maxillofacial Surgery department on diagnostics and treatment of cancer, as well as restoration/regeneration of hard and soft tissues in the maxillofacial area.

ACTA has committed itself to cooperate in the thematic approach of UvA and multidisciplinary interfaculty collaborations that was initiated in 2021. ACTA and AUMC are leading the 'Healthy future' theme, and ACTA participates also with the 'Responsible digital transformations' and 'Sustainable prosperity' themes. In addition, we are closely involved with the VUA Campus Center for AI & Health, as well as with the Data Science Center of UvA, through which a PhD-student on Artificial Intelligence research is funded, in cooperation with the Faculty of Science. Finally, ACTA has further developed collaborations with UvA's Institute for Advanced Study (IAS). ACTA is initiator and lead of the public private partnership ORANGEHealth (ORal ANd GEneral Health), in cooperation with the other two academic dental schools in The Netherlands, as well as the faculties of Dental Hygiene from the four Universities of Applied Sciences in the Netherlands. This consortium initiated a kickstart project 'ORANGEForce' which was approved in December '21 with an official start date of April '22. The full project was awarded at €4,5 M, of which €1,5 M allocated to ACTA. In this project, ACTA will play an important role in salivary sciences and diagnostics in a cooperative relationship with Philips. The ORANGEHealth programme will span for 10 years, in which important connections between oral healthcare professionals will be forged, bringing academic connections to the professional field, as well as bringing innovations to the market.

Because new developments in the diverse disciplines are well integrated into the curriculum, the Bachelor, Master and postgraduate education programmes of ACTA are certain to connect into research. Essentially, all researchers are also involved in practical and/or theoretical education, as well as supervising BSc and MSc theses (both undergraduate and postgraduate MSc theses).

Finally, we are strengthening our efforts to renew digitalization of research and education. Research into the effectiveness and use of skills training offers great possibilities, especially in cooperation with the Amsterdam Skills Center (ASC) and AUMC. For this, the multidisciplinary cooperation with experts on psychology, behaviour and movement sciences is essential.

IMPACT OF THE CORONAVIRUS ON PHD-RESEARCHERS

During the summer of 2021, a questionnaire was sent to all ACTA PhD-researchers to explore the impact of the pandemic on their progression and wellbeing.

In total, 42 PhD-researchers (out of the total of 190 PhD-candidates) filled in the questionnaire along with their supervisors, all across the research careers, from 1st year to 5th year of PhD studies. 34 of them indicated that they had experienced delay due to COVID-19.

The average delay is 6,7 months, ranging from 0 months delay to 24 months. The most reported consequence of the government-imposed restrictions on the advancement of their research/career among researchers is 'Having had less access to events (e.g. conferences) for engaging with the academic community, I fear my network in the community is insufficient for future plans (grants, work visits, etc.)'; followed by 'I worry about being able to find a postdoc position now that I have been unable to follow or attend certain courses/trainings/conferences'; making it clear that the contact and networking with others is especially missed due to the pandemic. ACTA will attempt to organize more in-person networking events now that the COVID-situation allows it.

Almost half of the PhD-students reported experiencing mental stress due to the pandemic. Additionally, many PhD-students reported having additional stressors, such as having children who could not go to school during lockdowns, needing to care for other family members, or dealing with their own health issues. ACTA is following initiatives from both parent universities by offering additional help and guidance for whom may need this.

Thanks to funds supplied by the VUA and UvA, as well as a large financial contribution by the ACTA Research Institute, ACTA will be able to compensate in part 16 senior PhD-researchers who are salaried through first, second or third reimbursement funds. Those PhD-researchers who are eligible to receive this compensation, have been notified as such.

In the coming years, we are lobbying to receive more funding from the parent universities, as well as the Dutch government, in order to support additional PhD-researchers who experience substantial delays due to the pandemic.

SOME INTERESTING INFORMATION ON PHD-RESEARCHERS

Undergraduate background of ACTA’s PhD-researchers; two-thirds have studied dentistry.

animal sciences	biomedical engineering	biomedical sciences	chemical technology
chemistry	dentistry	evidence based practice	educational sciences
engineering	health sciences	international public health	medical anthropology
medical sciences	medicine	maxillofacial surgery	molecular biology
molecular sciences	movement sciences	oral health care	oral health sciences
orthodontics	psychology	public health dentistry	technical medicine

Countries of origin of PhD-researchers at ACTA

Afghanistan	Austria	Belgium	Brazil
Cameroon	Canada	Chile	China
Costa Rica	Curaçao	France	Greece
India	Indonesia	Iran	Iraq
Israel	Italy	Latvia	Lithuania
Peru	Romania	Sri Lanka	Switzerland
Thailand	The Netherlands	United States of America	Uzbekistan

As a result of the ongoing COVID-19 pandemic, approximately 40% of laboratory research was scaled down. Clinical research did not take place in 2021. The total impact to ACTA's research due to COVID-19 is not yet well understood and the long-term effects are also still under exploration. Most of ACTA’s junior and senior researchers as well as the PhD-students were able to work remotely; additionally, literature studies have been conducted by PhD students and dental students that can be published and used as part of dissertations. In this way, the damage, in particular with regard to the progress of the PhD students, seems to be limited. Some ongoing clinical studies were prematurely terminated, with the limited results published as case reports.



BY SUBJECT: DENTISTRY

ACTA is a dental research institution par excellence, consistently ranked in the top five of the world:

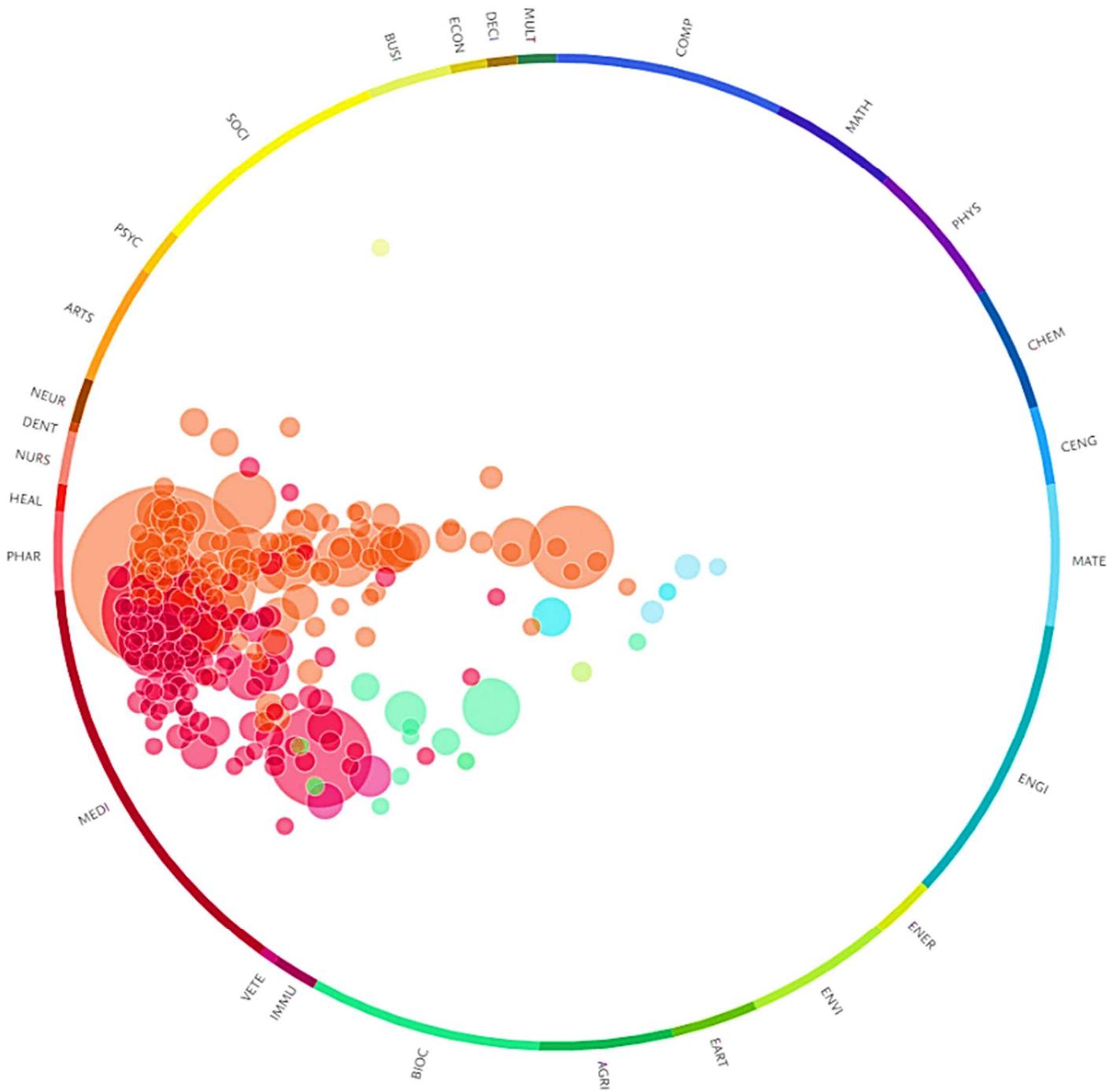
2022: #2

2021: #3

2020: #2

2019: #2

2018: #4



Circle graph of research topics based on 2021 ACTA publications
(source: SciVal)

FEATURED RESEARCH (1)

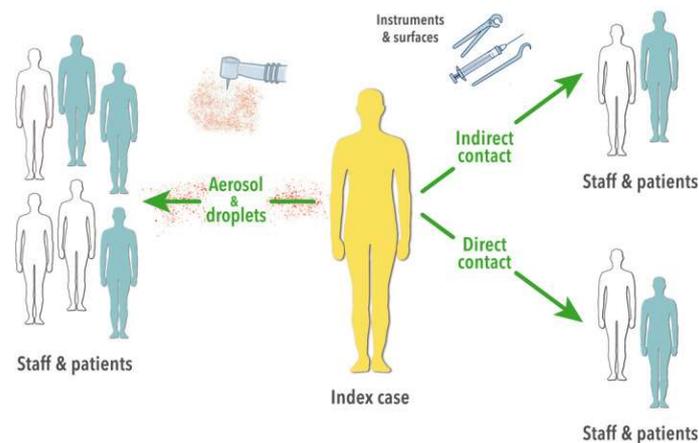
‘Infection control in dental health care during and after the SARS-CoV-2 outbreak’

Catherine Volgenant, Ilona Persoon, Rolf de Ruijter, Hans de Soet

Oral Diseases, Open Access; Volume 27, Issue S3, Pages 674 – 683; April 2021

COVID-19 is an emerging infectious disease caused by the widespread transmission of the coronavirus SARS-CoV-2. Some of those infected become seriously ill. Others do not show any symptoms, but can still contribute to transmission of the virus. SARS-CoV-2 is excreted in the oral cavity and can be spread via aerosols. Aerosol generating procedures in dental health care can increase the risk of transmission of the virus. Due to the risk of infection of both dental healthcare workers and patients, additional infection control measures for all patients are strongly recommended when providing dental health care. Consideration should be given to which infection control measures are necessary when providing care in both the current situation and in the future.

Source: <https://pubmed.ncbi.nlm.nih.gov/32391651/>



OPEN SCIENCE & RDM

ACTA continues and intensifies the current Open Science and Research Data Management (RDM)-policies. ACTA uses a license for the electronic-Case Report Form (e-CRF) tool CASTOR, which is mandatory to use for all clinical research. For other survey research, ACTA is actively involved with the VUA central purchase of Qualtrics, and functions as an administrator for the University. ACTA is also cooperating with the VUA for a public tender to acquire an electronic lab-journal.

A UvA-wide audit in 2021 judged ACTA's RDM-policies and procedures and scored us at maturity level (1-5) 2.4, slightly above the UvA-average of 2.1, and the second best faculty after the medical faculty (AUMC). In response to this report, ACTA has taken several measures to improve the maturity level, including hiring an additional data steward, as well as implementing RDM-training for PhD-students and improving the oversight on issues like storage, data transfer agreements, and General Data Protection Regulation-related issues.

Explained: Copyright Act Amendment 25fa ('Green Open Access')

Article 25fa of the Copyright Act (Taverne Amendment) allows researchers to share short scientific works (e.g. articles & book chapters), regardless of any restrictive publishers' guidelines.

"The maker of a short scientific work, the research for which has been paid for in whole or in part by Dutch public funds, shall be entitled to make that work available to the public for no consideration following a reasonable period of time after the work was first published, provided that clear reference is made to the source of the first publication of the work."

The Dutch universities decided to give open access an extra boost from 2019 by starting a pilot early 2019. Based on the Taverne Amendment, the publishers' versions of short scientific works can be made available after six months via the university repository. It is important that the researcher explicitly asks for this. From January 1, 2020, the VSNU will roll out the use of the Taverne amendment widely within the affiliated universities. The university libraries can make your publication available in the repository. The period of publication after six months applies under the following conditions:

-The publication is funded wholly or partly with Dutch public funds.

-The maker(s) has/have an employment contract with an institution affiliated to the VSNU; the makers can be both authors and co-authors.

-It is a short scientific work; this has the length of a scientific article or book chapter in an edited collection.



Open Access status of ACTA publications in 2021

	Number	Percentage (of total 344)
Gold Open Access	107	31 %
Hybrid Gold Open Access	113	33 %
Bronze Open Access	18	5 %
Green Open Access	182	23 %
No Open Access	89	26 %

Note that because of overlap percentages do not add up to 100%

1) **Gold Open Access:** Full Open Access journals; publication via publisher platforms, in full open access journals. This route may involve a charge. The publication costs, known as ‘article processing charges’ (APCs), are covered by authors or by their institutions. Most research funders support open access and are willing to cover the costs. A list of fully open access journals that are accessible worldwide can be found through the Directory of Open Access Journals (www.doaj.org).

2) **Hybrid Gold Open Access:** publication via ‘hybrid’ journals; these journals are subscription journals that allow open access publication of individual articles on payment of an Article Processing Charge (APC). Thanks to a series of agreements between the Universities of the Netherlands (UvNL; formerly VSNU) and several academic publishers, Dutch-affiliated researchers can publish for free in thousands of hybrid journals.

3) **Bronze Open Access:** Bronze open access articles are free to read only on the publisher page, but lack a clearly identifiable license. Such articles are typically not available for reuse.

4) **Green Open Access:** This variant of Open Access enables authors to archive their own work on a website controlled by them, or their funder, or on an independent repository. The deposited version of the article may or may not be final. It might be the accepted manuscript by the journal or an almost final one, after peer review. In this case, it is called “post print.” Unlike the gold route of Open Access, some journals demand an embargo period.

ONE YEAR AFTER THE RESEARCH EVALUATION

In early 2021, the definitive report of the evaluation committee was published. It rated ACTA's research very highly, and the committee greatly valued all facets of the oral health research in which ACTA is active.

The viability was scored good to excellent; the committee appreciated ACTA's great facilities, research culture, support, and PhD-candidate satisfaction. The consistently high QS ranking of ACTA added to the overall positive image of the continuity of the research.

Researchers showed an excellent mix of fundamental and biologically oriented research, as well as clinical research and research aimed at 'societal' outcomes. The committee recommended to increase attention in the area of Public Health research. In addition, the committee provided several recommendations, upon which action has been taken in 2021:

- 1) *The committee recommends strengthening Public Health (PH) research.* In 2021, several actions have been undertaken to strengthen ACTA's PH-portfolio. Examples include participating in the Amsterdam-based cohort of the large longitudinal Sarphati-cohort; as well as actively taking part in the AIMS (Amsterdam Infant Microbiome Study) cohort within Sarphati, with Prof. G. van der Heijden appointed as programme council member, and Prof. M. van der Veen as acting member of the Supervisory Board. In addition, within the ORANGEHealth project, the ORANGEForce project has been initiated, specifically focusing on oral health in older persons. Finally, PH has been strengthened (i) by appointment of prof. D.E. Slot in preventive dentistry, (ii) by refocusing the Social Dentistry department into the Oral Public Health department, and (iv) by adding a representative from the latter department in the Committee of Scientific Research (CWO).
- 2) *The committee recommends to support researchers continuously and actively with grant requests.* The ACTA research institute annually reserves an amount to support researchers with finding and submitting grant requests, through for example consultancy and other support.
- 3) *The committee recommends implementing support structures for early career researchers with regards to career planning.* In 2021, mainly due to COVID-related

measures, this recommendation has not been followed up yet. The Research Institute has offered PhD-candidates financial support for delay in research because of COVID-restrictions and lockdowns, offering almost €160k in support to 16 PhD-candidates.

- 4) *The committee recommends to continue the monitoring of the rate of success of PhD-candidates and to support them as necessary.* ACTA continues monitoring this, keeping in mind that 2021 was a complicated year with lockdowns and limited availability of laboratories. This will be a point of attention for the coming years. Another complicating factor to monitor progress is the multiple part-time appointments of PhD-candidates.
- 5) *Finally, the committee recommends to continue to strive for improvement of diversity in all levels of the organization, including but not limited to cultural and gender diversity.* ACTA is proud to have one of the most diverse student populations of all faculties but realizes that this is not equally represented throughout the academic career. A diversity officer has been appointed to keep sustained attention on this matter. Additionally, ACTA participates in networks such as the 'Nederlands Netwerk Vrouwelijke Hoogleraren (Dutch Network of Women Professors), which offers opportunities to improve the gender balance in women professors. In 2021, professors Slot and van der Veen have been appointed through specific VUA-initiatives to facilitate the improvement of the academic careers of female researchers.

GRANTS



ORANGEHealth.nl, is a Dutch Public Private Partnership of knowledge institutions, participating citizens and their organizations, companies, oral healthcare professionals, insurance companies and public health bodies. It was granted to ACTA and partners in 2021. They will join forces and collaborate in a multi-year program to address mutually linked oral and general health challenges.

ORANGEHealth.nl creates action within the Dutch Knowledge and Innovation agenda 'Health and Care' and contributes to its main objectives: live longer in good health, reduce health disparities, promote the living environment, offer more care in the right place and improve prospects for people with chronic diseases and dementia.



People seek medical help when they feel ill. The current healthcare system is organized to cure patients once disease symptoms become apparent. All future health strategies will refocus on prevention and care. Oral health professionals have a longstanding tradition of early signaling and prevention of dental diseases. However, this unique expertise is not

yet integrated in general healthcare. Therefore, ORANGEHealth will integrate oral healthcare into the general healthcare system in close collaboration with other primary and public healthcare providers. This allows for wider preventive action, increases the quality of life for individuals and reduces healthcare costs on the short and longer term.

Oral health has a history in care and prevention

A large percentage of the Dutch population (80%) regularly visits an oral healthcare professional. Oral healthcare professionals have shown success in moving from treatment to prevention of oral diseases and monitoring oral health: the prevalence of complete tooth loss of the total population has been reduced by approximately 50% since 2000: from 15,7% to 8% in 2018. The teeth, tongue, saliva and surrounding tissues form an easy access route to non-invasively survey oral and –potentially- general health. Oral health care professionals are in the unique position to play a new role in the monitoring and early detection of oral and general health issues.

Policy makers will benefit from the monitoring information and application of data science will feed future health strategies with regard to oral and general health. "Oral health is a key indicator of overall health, well-being and quality of life. Most oral diseases and conditions share modifiable risk factors with the leading NCDs (cardiovascular diseases, cancer, chronic respiratory diseases and diabetes). These risk factors include tobacco use, alcohol consumption and unhealthy diets high in free sugars, all of which are increasing at the global level. There is a

proven relationship between oral and general health” (<https://www.who.int/news-room/fact-sheets/detail/oral-health>).

A collaborative approach to join oral health and general health

Oral health is an integral part of general health. Many associations between oral and systemic disease have been described, and common risk factors identified. This joint research approach will build on this relationship to develop effective and cost-effective diagnostic, prevention and treatment tools.

Innovative tools for monitoring and early detection at the chairside or at home will not only benefit consumers but will also provide valuable input for future research and innovation. ORANGEHealth expects important steps forward in oral and general health of citizens and specific groups such as children, older people, the chronically ill and socio-economically disadvantaged groups.

ORANGEHealth.nl envisages to include all players of the health network. All stakeholders will collaborate in the ORANGEHealth program to improve integrated monitoring and prevention of oral and systemic diseases of the Dutch population. First, we will endorse running projects with similar objectives and boost their progress as much as possible. Second, we will attract funding to initiate and execute projects. Representatives from the stakeholders will manage the program. ORANGEHealth will apply data science to extract hitherto hidden information from existing data on oral and general health from primary care practices, data repositories and health cohorts. The partnership will develop innovative tools for early diagnosis and prevention of oral and systemic diseases and we will implement the results nationwide.

ORANGEHealth will create action around and contribute to National themes (Dutch Research Agenda), focus on specific oral care roadmaps (Kennisagenda Mondgezondheid) and other scientific studies. We will aim at better understanding diseases, prevention and effect measurements. We will act within the mission-driven top sector on Policy and Knowledge and Innovation Agenda Health and Care (2020-2023) with a focus on ‘key technologies’.

Other grants

In addition to ORANGEHealth, ACTA was awarded two large NWO TTW grants in 2021: One for prof. Bikker (RENAISSANCE: Restoring native salivation using natural olfactory resins and volatile compounds); and another for prof. Gibbs. ACTA also participates in ‘Groeifonds’ grants ‘Medtech’ and ‘DUTCH’.

FEATURED RESEARCH 2

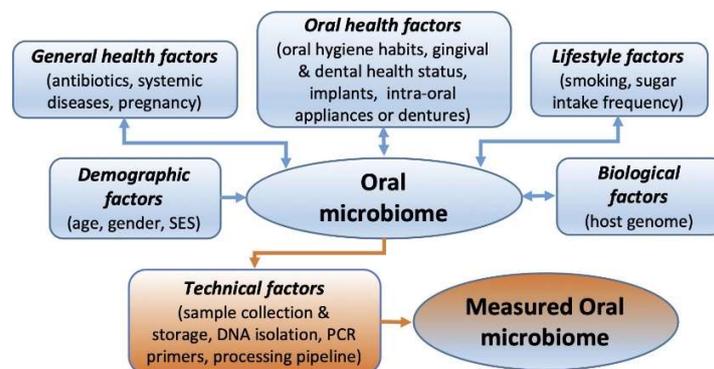
Optimizing the quality of clinical studies on oral microbiome: A practical guide for planning, performing, and reporting

Egija Zaura, Vincent Pappalardo, Mark Buijs, Catherine Volgenant, Bernd Brandt

Periodontology 2000 Volume 85, Issue 1, Pages 210 – 236 February 2021

With this review, we aim to increase the quality standards for clinical studies with microbiome as an output parameter. We critically address the existing body of evidence for good quality practices in oral microbiome studies based on 16S rRNA gene amplicon sequencing. First, we discuss the usefulness of microbiome profile analyses. Is a microbiome study actually the best approach for answering the research question? This is followed by addressing the criteria for the most appropriate study design, sample size, and the necessary data (study metadata) that should be collected. Next, we evaluate the available evidence for best practices in sample collection, transport, storage, and DNA isolation. Finally, an overview of possible sequencing options (eg, 16S rRNA gene hypervariable regions, sequencing platforms), processing and data interpretation approaches, as well as requirements for meaningful data storage, sharing, and reporting are provided.

Source: <https://pubmed.ncbi.nlm.nih.gov/33226702/>



INTERNATIONAL COLLABORATION IN 2021



World map showing countries with collaborations in 2021 in blue

The top 10 of countries with whom ACTA has collaborated in 2021 are listed below.

(source: Dept. of Research Intelligence, Vrije Universiteit Amsterdam)

-  Brazil
-  Italy
-  United Kingdom
-  Switzerland
-  Belgium
-  Sweden
-  Germany
-  Denmark
-  United States
-  Finland

Type of collaboration	(%)
International collaboration	60,3
Only national collaboration	35,2
Only institutional collaboration	4,2
Single authorship (no collaboration)	0,2

ACTA PHD THESES 2021

- Angambakkam Rajasekharan, P.K.** (2021, April 15). Prevalence and clinical aspects of cracks and fractures in teeth. Universiteit van Amsterdam, 127 p. Prom./coprom.: prof.dr. C. van Loveren, dr. H. Shemesh.
- Berger, D.M.S.** (2021, December 17). Head and neck cutaneous melanoma: new insights in diagnostics and therapy. Universiteit van Amsterdam, 179 p. Prom./coprom.: prof.dr. A.J.M. Balm, prof.dr. M.W.M. van den Brekel, dr. W.M.C. Klop, dr. A.C.J. van Akkooi.
- Everaars, B.** (2021, October 27). Health and frailty in older people - Perceptions, priorities, and prediction in primary care. Universiteit van Amsterdam, 175 p. Prom./coprom.: prof.dr. G.J.M.G. van der Heijden, prof.dr. N.J. de Wit, dr. N. Blijenberg, dr. K. Jerkovic-Cosic.
- Hoogenkamp, M.H.** (2021, September 17). Challenging dental unit water biofilms: clean, treat, repeat. Universiteit van Amsterdam, 155 p. Prom./coprom.: prof.dr. W. Crielaard, dr. J.J. de Soet, dr. A.M.G.A. Laheij, dr. B.W. Brandt.
- Jiang, Y.** (2021, September 8). Saliva-derived microcosm biofilm models for understanding oral microbial ecology. Universiteit van Amsterdam, 159 p. Prom./coprom.: prof.dr. W. Crielaard, dr. D. Deng, dr. R.A.M. Exterkate.
- Jin, J.** (2021, July 8). Physico-chemical niche conditions for bone cells. Vrije Universiteit, 196 p. Prom./coprom.: prof.dr. J. Klein Nulend, prof.dr. R.T. Jaspers, dr. A.D. Bakker, dr. G. Wu.
- Karsten, R.T.** (2021, November 19). Functional impairment and cues for rehabilitation of head and neck cancer patients. Universiteit van Amsterdam, 243 p. Prom./coprom.: prof.dr. L.E. Smeele, prof.dr. M.W.M. van den Brekel, dr. L. van der Molen, dr. M.M. Stuiver.
- Kelder, C.L.** (2021, July 9). Towards 3D-printed bioactive calcium phosphate scaffolds for bone tissue engineering. Vrije Universiteit, 154 p. Prom./coprom.: prof.dr. D. Wismeijer, dr. A.D. Bakker, prof.dr. C.J. Kleverlaan, dr.ir. T.J. de Vries.
- Keulen, S. van** (2021, May 19). The clinical value of fluorescence imaging in head and neck cancer. Vrije Universiteit, 195 p. Prom./coprom.: prof.dr. T. Forouzanfar, dr. N.S. van den Berg.
- Musu, D.** (2021, June 15). Clinical applications of ultrasound examination in the assessment of bone lesions of the jaws. Universiteit van Amsterdam, 111 p. Prom./coprom.: dr. H. Shemesh, prof. E. Cotti.
- Raghav, K.** (2021, March 9). Evaluation of the effectiveness of Virtual Reality Exposure Therapy (VRET) in the management of anxiety about dental treatment. Universiteit van Amsterdam, 181 p. Prom./coprom.: prof.dr. A. de Jongh, dr. A.J. van Wijk.
- Revilla-León, M.** (2021, September 15). Integration of facial and intra-oral scanning technologies for prosthodontic rehabilitations. Universiteit van Amsterdam, 257 p. Prom./coprom.: prof.dr. A.J. Feilzer, prof.dr. M. Özcan.
- Rocca, G.T.** (2021, September 9). Optimizing the restoration of posterior endodontically treated teeth. Adhesive restoration of endodontically treated posterior teeth. Universiteit van Amsterdam, 235 p. Prom./coprom.: prof.dr. A.J. Feilzer, prof.dr. I. Krejci.
- Roos, C.J.A.M. de** (2021, October 13). Time limited trauma-focused treatment for children and adolescents. Universiteit van Amsterdam, 176 p. Prom./coprom.: prof.dr. A. de Jongh, dr. S. van der Oord, dr. B.A.H. Zijlstra.

Schreurs, R. (2021, October 1). Transformation in orbital reconstruction. Universiteit van Amsterdam, 258 p. Prom./coprom.: prof.dr. A.G. Becking, prof.dr. T.J.J. Maal, dr. L. Dubois, dr. P.J.J. Gooris.

Valkenburg, C. (2021, November 30). Dentifrice in the prevention of plaque and gingivitis. Universiteit van Amsterdam, 204 p. Prom./coprom.: prof.dr. D.E. Slot, prof.dr. G.A. van der Weijden.

Valstar, M.H. (2021, November 22). New epidemiological and PSMA-expression based insights in salivary gland tumors. Universiteit van Amsterdam, 195 p. Prom./coprom.: prof.dr. L.E. Smeele, prof.dr. A.J.M. Balm, dr. M.F. van Velthuysen, dr. W.V. Vogel.

Verhagen, C.V.M. (2021, June 2). Precision medicine in head and neck cancer: DNA repair genotyping and functional defects. Universiteit van Amsterdam, 191 p. Prom./coprom.: prof. dr. M.W.M. van den Brekel, prof.dr. M. Verheij, dr. C. Vens, dr. V.B. Wreesmann.

Wang, L.Y. (2021, January 18). Diagnostic, prognostic and therapeutic implications of regional lymph node metastases in differentiated thyroid carcinoma. Universiteit van Amsterdam, 172 p. Prom./coprom.: prof.dr. J.P. Shah, prof.dr. A.J.M. Balm, dr. I Ganly, dr. S.G. Patel.

Witneben Matter, JGC. (2021, February 25). Esthetics in implant prosthodontics. Vrije Universiteit, 195 p. Prom./coprom.: prof.dr. D. Wismeijer, prof.dr. U. Brägger.

Total: 20 dissertations in 2021



FEATURED RESEARCH 3

Oral function and its association with nutrition and quality of life in nursing home residents with and without dementia: A cross-sectional study

Liza van de Rijt, Alexandra Feast, Victoria Vickerstaff, Elizabeth Sampson, Frank Lobbezoo
Gerodontology, 38(4), 404-413.

Oral health problems increase with age, and are common in nursing home residents, especially in those with dementia. These problems can lead to tooth loss, diminished oral function and malnutrition. In this study, we compare oral function, nutritional status and quality of life (QoL) between residents with and without dementia, and examine associations between these variables.

To this end, a cross-sectional study was conducted in four UK nursing homes. Residents aged ≥ 65 with and without dementia were included. Information was collected on demographics, dental status, quality of swallowing and chewing, xerostomia and orofacial pain. During oral examination, information was collected on number of teeth and occlusal units, and functional categories (e.g., number of occlusal units combined with dentures). Multiple linear regression was used for statistical analysis.

Of 84 residents with and 27 without dementia participated. Residents with dementia had significantly fewer teeth, fewer occlusal units and poorer functional categories when compared to those without dementia; additionally nutritional status was significantly poorer, and quality of chewing was significantly correlated with nutritional status.

Source: <https://onlinelibrary.wiley.com/doi/10.1111/ger.12535>

PUBLICATIONS PER JOURNAL

Title of journal	Nr. of publications	Scimago-ranking (quarter)	Dentistry (D) or non-dentistry (ND)	Impact Factor
ACS Biomaterials Science and Engineering	1	Q2	ND	4,749
Acta Astronautica	2	Q1	ND	2,413
Acta Biomaterialia	2	Q1	ND	8,947
Acta Odontologica Scandinavica	1	Q3	D	2,331
Aging Cell	1	Q1	ND	9,304
American Journal of Orthodontics and Dentofacial Orthopedics	1	Q2	D	2,65
Analyst	1	Q1	ND	4,616
Anatomical Sciences Education	1	Q1	ND	5,958
Annals of Family Medicine	1	Q1	ND	5,166
Antibiotics	1	Q2	ND	4,639
Applied Sciences (Switzerland)	2	Q2	ND	2,679
Archives of Oral Biology	1	Q2	D	2,635
Atlas of the Oral and Maxillofacial Surgery Clinics of North America	5			
Bioactive Materials	2	Q1	ND	2,145
Biochemical and Biophysical Research Communications	1	Q2	ND	3,575
Biochemistry and Cell Biology	2	Q3	ND	3,626
Biofouling	2	Q1	ND	5,521
Biomechanics and Modeling in Mechanobiology	1	Q3	ND	4,076
Biomedical Materials (Bristol)	1	Q2	ND	4,944
Biomedicines	1	Q1	ND	6,081
Biomolecules	1	Q2	ND	4,879
Biophysical Journal	2	Q2	ND	4,033
Biosensors	1	Q1	ND	2,745
BJPsych Open	1	Q2	ND	3,209
BMC Medical Education	1	Q2	ND	2,463

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BMC Oral Health	3	Q2	D	2,757
BMJ Open	1	Q2	ND	2,692
Bone	1	Q2	ND	4,398
Bone and Joint Research	1	Q1	ND	5,853
Bone Marrow Transplantation	1	Q1	ND	5,483
Brain Sciences	1	Q3	ND	4,198
Brazilian Dental Journal	1	NA	D	NA
British Dental Journal	1	Q4	D	1,626
British Journal of Oral and Maxillofacial Surgery	2	Q4	D	1,651
Burns and Trauma	1	Q1	ND	5,099
Cancers	1	Q1	ND	6,639
Caries Research	3	Q1	D	4,056
Cartilage	1	Q1	ND	4,634
Case Reports in Dentistry	1	N/A	D	N/A
Cell Proliferation	1	Q1	ND	6,831
Cellulose	1	Q1	ND	5,044
Cleft Palate-Craniofacial Journal	1	Q4	D	1,433
Clinical Implant Dentistry and Related Research	2	Q1	D	3,932
Clinical Oral Implants Research	2	Q1	D	5,977
Clinical Oral Investigations	9	Q1	D	3,573
Clinical Rheumatology	1	Q3	ND	2,98
Coatings	2	Q2	ND	2,881
Communications Biology	2	Q1	ND	6,268
Communications in Computer and Information Science	1	?	ND	0,48
Community Dentistry and Oral Epidemiology	2	Q2	D	3,383
Composites Part B: Engineering	1	Q1	ND	9,078
Computer Methods and Programs in Biomedicine	1	Q1	ND	5,428
Contact Dermatitis	2	Q1	ND	6,6
Contemporary Clinical Trials Communications	1	Q4	ND	2,226
Critical Reviews in Microbiology	1	Q1	ND	7,624
Culture	1			
Current opinion in otolaryngology & head and neck surgery	1	Q3	ND	2,752

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Current Topics in Microbiology and Immunology	1	Q2	ND	6,98
Data in Brief	1			N/A
Dental and Medical Problems	1			N/A
Dental Materials	3	Q1	D	5,304
Dentomaxillofacial Radiology	2	Q3	D	2,419
Environmental Science: Water Research and Technology	1	Q1	ND	4,251
European Archives of Oto-Rhino-Laryngology	1	Q2	ND	2,503
European Archives of Paediatric Dentistry	3	N/A	D	N/A
European Cells and Materials	1	Q1	ND	3,942
European Journal of Cancer Care	1	Q1	ND	2,52
European Journal of Dental Education	3	Q3	D	2,355
European Journal of General Dentistry	1	Q4	D	0,29
European Journal of Medicinal Chemistry	1	Q1	ND	6,514
European Journal of Oral Sciences	2	Q2	D	2,612
European Journal of Orthodontics	1	Q2	D	3,075
European Journal of Psychotraumatology	6	Q2	ND	4,071
Experimental Brain Research	1	Q4	ND	1,972
Experimental Dermatology	2	Q2	ND	3,96
Expert Review of Anticancer Therapy	1	Q2	ND	4,512
Expert Review of Neurotherapeutics	1	Q2	ND	4,618
Folia Microbiologica	1	Q4	ND	2,099
Frontiers in Bioengineering and Biotechnology	1	Q1	ND	5,89
Frontiers in Cell and Developmental Biology	3	Q1	ND	6,684
Frontiers in Cellular and Infection Microbiology	6	Q1	ND	5,293

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Frontiers in Chemistry	1	Q2	ND	5,221
Frontiers in Education	1	NA	ND	NA
Frontiers in Endocrinology	1	Q1	ND	5,555
Frontiers in Immunology	2	Q1	ND	7,561
Frontiers in Nutrition	1	Q1	ND	6,576
Frontiers in Oncology	3	Q2	ND	6,244
Frontiers in Pharmacology	1	Q1	ND	5,811
Frontiers in Psychology	2	Q2	ND	2,988
Frontiers in Sustainable Cities	1	NA	ND	NA
Gerodontology	2	Q2	D	2,98
Health Expectations	1	Q1	ND	3,377
International Dental Journal	3	Q2	D	2,512
International Endodontic Journal	4	Q1	D	5,264
International Journal of Cancer	1	Q1	ND	7,396
International Journal of Cardiology: Cardiovascular Risk and Prevention	1	Q2	ND	4,162
International Journal of Dental Hygiene	4	Q2	D	2,477
International Journal of Environmental Research and Public Health	2	Q1	ND	3,39
International Journal of Molecular Sciences	1	Q1	ND	5,924
International Journal of Oral and Maxillofacial Implants	1	Q2	D	2,804
International Journal of Oral and Maxillofacial Surgery	6	Q2	D	2,789
International Journal of Periodontics and Restorative Dentistry	1	Q4	D	1,84
International Journal of Prosthodontics	1	Q4	D	1,681
Iranian Biomedical Journal	1	NA	ND	NA
Iranian Journal of Veterinary Science and Technology	1	NA	ND	NA
JAMA Otolaryngology - Head and Neck Surgery	1	Q1	ND	6,223

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JDR Clinical and Translational Research	1	NA	D?	NA
Journal of Applied Research in Intellectual Disabilities	1	Q1	ND	2,7
Journal of Autism and Developmental Disorders	1	Q1	ND	4,291
Journal of Biomedical Materials Research - Part A	1	Q2	ND	4,396
Journal of Cancer Research and Clinical Oncology	1	Q2	ND	4,553
Journal of Cellular and Molecular Medicine	1	Q2	ND	5,31
Journal of Clinical Medicine	9	Q1	ND	4,242
Journal of Clinical Pediatric Dentistry	1	Q4	D	1,065
Journal of Clinical Periodontology	4	Q1	D	8,728
Journal of Composites Science	1	Q1	D	6,116
Journal of Contemporary Dental Practice	1	NA	NA	NA
Journal of Craniofacial Surgery	1	Q4	ND	1,046
Journal of Cranio-Maxillofacial Surgery	1	Q3	D	2,078
Journal of Dental Research	1	Q1	D	6,116
Journal of Dentistry	4	Q1	D	4,379
Journal of Endodontics	2	Q1	D	4,171
Journal of Esthetic and Restorative Dentistry	2	Q2	D	2,843
Journal of Evidence-Based Dental Practice	1	Q1	D	5,267
Journal of Frailty and Aging	1	NA	NA	NA
Journal of Hospital Infection	1	Q2	ND	3,926
Journal of Immigrant and Minority Health	1	Q3	ND	1,955
Journal of Innovative Optical Health Sciences	1	Q3	ND	1,77
Journal of Internal Medicine	1	Q1	ND	8,989
Journal of Medical Microbiology	1	Q4	ND	2,472

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Journal of Nutrition	1	Q2	ND	4,798
Journal of Oral and Facial Pain and Headache	1	Q4	D	1,871
Journal of Oral Implantology	1	Q4	D	1,799
Journal of Oral Microbiology	1	Q1	ND	5,474
Journal of Oral Rehabilitation	19	Q1	D	3,837
Journal of Patient Safety	1	Q2	ND	2,844
Journal of Periodontology	2	Q1	D	6,993
Journal of Personalized Medicine	1	Q1	ND	4,945
Journal of Prosthetic Dentistry	6	Q2	D	3,426
Journal of Prosthodontics	1	NA	NA	NA
Journal of Sleep Research	1	Q2	ND	3,981
Journal of the Mechanical Behavior of Biomedical Materials	3	Q2	ND	3,932
Journal of Tissue Engineering and Regenerative Medicine	1	Q2	ND	3,963
Laryngoscope	1	Q1	ND	3,325
Lasers in Medical Science	1	Q2	ND	3,161
Magnetic Resonance Materials in Physics	1	Q3	ND	2,31
Materials	2	Q1	ND	3,623
Materials Express	1	NA	ND	NA
Materials Science and Engineering C	1	Q1	ND	7,328
Medicina Oral Patologia Oral y Cirugia Bucal	3	Q3	D	2,047
Mental Health and Physical Activity	1	Q2	ND	3,197
Methods in Molecular Biology	1	NA	NA	NA
Modern Pathology	1	Q1	ND	7,842
Molecules	1	Q2	ND	4,412
Musculoskeletal Science and Practice	2	Q2	ND	2,52
Neural Regeneration Research	1	Q2	ND	7,77
npj Biofilms and Microbiomes	1	Q1	ND	7,29
Nutrients	1	Q1	ND	5,731

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Odontology	1	Q2	D	2,634
Oncologist	1	Q2	ND	5,552
Optics InfoBase Conference Papers	1	NA	NA	NA
Oral and Maxillofacial Surgery	2	NA	D	NA
Oral Diseases	3	Q1	D	3,511
Peptides	1	Q2	ND	3,75
Periodontology 2000	2	Q1	D	7,589
Pharmaceuticals	1	Q1	ND	5,863
Pharmaceutics	1	Q1	ND	6,321
Photobiomodulation	1	Q3	ND	2,222
Photochemistry and Photobiology	1	Q2	ND	3,421
Physician and Sportsmedicine	1	Q3	ND	2,241
Physics in Medicine and Biology	1	Q2	ND	3,609
Physiological Reports	1	NA	ND	NA
Phytotherapy Research	1	Q1	ND	5,882
Pilot and Feasibility Studies	1	NA	ND	NA
PLoS ONE	5	Q2	ND	3,24
Polymers	1	Q1	ND	4,43
Proceedings of the National Academy of Sciences of the United States of America	1	Q1	ND	11,205
Progress in Biomedical Optics and Imaging - Proceedings of SPIE	1	NA	ND	NA
Quality of Life Research	1	Q1	ND	4,147
Radiotherapy and Oncology	1	Q2	ND	2,991
Regenerative Engineering and Translational Medicine	1	NA	ND	NA
Research in Developmental Disabilities	1	Q1	ND	3,23
Rheumatology (United Kingdom)	1	Q1	ND	7,58
RMD Open	1	Q2	ND	5,117
Scientific Reports	6	Q1	ND	4,38
Sleep	1	Q1	ND	5,849
Sleep and Breathing	6	Q3	ND	2,816
Sleep Medicine	1	Q2	ND	3,492
Sleep Medicine Reviews	2	Q1	ND	11,609

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Supportive Care in Cancer	2	Q1	ND	3,603
Systematic Reviews	1	Q2	ND	2,522
The Journal of craniofacial surgery	1			
The Lancet	1	Q1	ND	79,323
The Lancet Healthy Longevity	2	NA	NA	NA
Theranostics	1	Q1	ND	11,556
Tissue Engineering - Part A	1	Q2	ND	3,845
Trials	2	Q4	ND	2,279
Ultrastructural Pathology	1	Q4	ND	1,094
Water Research	1	Q1	ND	11,236

ACTA PUBLICATIONS 2021

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