VIOS
DENTAL

BIOLOGICAL DENTISTRY

Research Database

RESEARCH DATABASE

Root Canals

- Aminoshariae, Anita, James C. Kulild, Andre Mickel, and Ashraf F. Fouad. "Association between Systemic Diseases and Endodontic Outcome: A Systematic Review." *Journal of Endodontics* 43, no. 4 (April 2017): 514–19. https://doi.org/10.1016/j.joen.2016.11.008.
- Bains, Rhythm, and Vivek K. Bains. "Lesions of Endodontic Origin: An Emerging Risk Factor for Coronary Heart Diseases." *Indian Heart Journal* 70 Suppl 3 (December 2018): S431–34. https://doi.org/10.1016/j.ihj.2018.07.004.
- Barta, Zsolt. "Apical Periodontitis in Patients With Inflammatory Bowel Disease: A Puppet Master?" *Inflammatory Bowel Diseases* 26, no. 2 (January 6, 2020): 280–82. https://doi.org/10.1093/ibd/izz129.
- Berlin-Broner, Y., M. Febbraio, and L. Levin. "Association between Apical Periodontitis and Cardiovascular Diseases: A Systematic Review of the Literature." *International Endodontic Journal* 50, no. 9 (September 2017): 847–59. https://doi.org/10.1111/iej.12710.
- Brisman, D. L., A. S. Brisman, and M. S. Moses. "Implant Failures Associated with Asymptomatic Endodontically Treated Teeth." *Journal of the American Dental Association (1939)* 132, no. 2 (February 2001): 191–95. https://doi.org/10.14219/jada.archive.2001.0154.
- Caplan, D. J., J. B. Chasen, E. A. Krall, J. Cai, S. Kang, R. I. Garcia, S. Offenbacher, and J. D. Beck. "Lesions of Endodontic Origin and Risk of Coronary Heart Disease." *Journal of Dental Research* 85, no. 11 (November 2006): 996–1000. https://doi.org/10.1177/154405910608501104.
- Caplan, Daniel J., James S. Pankow, Jianwen Cai, Steven Offenbacher, and James D. Beck. "The Relationship Between Self-Reported History of Endodontic Therapy and Coronary Heart Disease in the Atherosclerosis Risk in Communities Study." *The Journal of the American Dental Association* 140, no. 8 (August 2009): 1004–12. https://doi.org/10.14219/jada.archive.2009.0311.
- Chew, Tallan, David Brennan, and Giampiero Rossi-Fedele. "Comparative Longitudinal Study on the Impact Root Canal Treatment and Other Dental Services Have on Oral Health-Related Quality of Life Using Self-Reported Health Measures (Oral Health Impact Profile-14 and Global Health Measures)." *Journal of Endodontics* 45, no. 8 (August 2019): 985-993.e1. https://doi.org/10.1016/j.joen.2019.05.002.
- Cotti, Elisabetta, Cristina Dessì, Alessandra Piras, Giovanna Flore, Martino Deidda, Clelia Madeddu, Angela Zedda, Giorgio Longu, and Giuseppe Mercuro. "Association of Endodontic Infection with Detection of an Initial Lesion to the Cardiovascular System." *Journal of Endodontics* 37, no. 12 (December 2011): 1624–29. https://doi.org/10.1016/j.joen.2011.09.006.
- Cotti, Elisabetta, Cristina Dessì, Alessandra Piras, and Giuseppe Mercuro. "Can a Chronic Dental Infection Be Considered a Cause of Cardiovascular Disease? A Review of the Literature." *International Journal of Cardiology* 148, no. 1 (April 1, 2011): 4–10. https://doi.org/10.1016/j.ijcard.2010.08.011.
- Gomes, Cinthya, Frederico Canato Martinho, Décio Sabbatini Barbosa, Leonardo Santos Antunes, Helvécio Cardoso Corrêa Póvoa, Thiago Hissnauer Leal Baltus, Nayara Rampazzo Morelli, et al. "Increased Root Canal Endotoxin Levels Are Associated with Chronic Apical Periodontitis, Increased Oxidative and Nitrosative Stress, Major Depression, Severity of Depression, and a Lowered Quality of Life." *Molecular Neurobiology* 55, no. 4 (April 2018): 2814–27. https://doi.org/10.1007/s12035-017-0545-z.
- Gomes, Maximiliano Schünke, Trevor Charles Blattner, Manoel Sant'Ana Filho, Fabiana Soares Grecca, Fernando Neves Hugo, Ashraf F. Fouad, and Mark A. Reynolds. "Can Apical Periodontitis Modify Systemic Levels of Inflammatory Markers? A Systematic Review and Meta-Analysis." *Journal of Endodontics* 39, no. 10 (October 2013): 1205–17. https://doi.org/10.1016/j.joen.2013.06.014.

- González-Navarro, Beatriz, Juan José Segura-Egea, Albert Estrugo-Devesa, Xavier Pintó-Sala, Enric Jane-Salas, Mari Carmen Jiménez-Sánchez, Daniel Cabanillas-Balsera, and José López-López. "Relationship between Apical Periodontitis and Metabolic Syndrome and Cardiovascular Events: A Cross-Sectional Study." *Journal of Clinical Medicine* 9, no. 10 (October 4, 2020). https://doi.org/10.3390/jcm9103205.
- Gupta, A., V. Aggarwal, N. Mehta, D. Abraham, and A. Singh. "Diabetes Mellitus and the Healing of Periapical Lesions in Root Filled Teeth: A Systematic Review and Meta-Analysis." *International Endodontic Journal* 53, no. 11 (November 2020): 1472–84. https://doi.org/10.1111/iej.13366.
- Hadziabdic, Naida, Amina Kurtovic-Kozaric, Azra Frkatovic, Samira Smajlovic, and Ariadne Letra. "Quantitative Analysis of CCL5 and Ep300 in Periapical Inflammatory Lesions." *Acta Medica Academica* 48, no. 2 (August 2019): 129–39. https://doi.org/10.5644/ama2006-124.251.
- Jacobi-Gresser, E., S. Schütt, K. Huesker, and V. Von Baehr. "Methyl Mercaptan and Hydrogen Sulfide Products Stimulate Proinflammatory Cytokines in Patients with Necrotic Pulp Tissue and Endodontically Treated Teeth." *Journal of Biological Regulators and Homeostatic Agents* 29, no. 1 (March 2015): 73–84.
- Joshipura, K, W Pitiphat, H Hung, W Willett, G Colditz, and C Douglass. "Pulpal Inflammation and Incidence of Coronary Heart Disease." *Journal of Endodontics* 32, no. 2 (February 2006): 99–103. https://doi.org/10.1016/j.joen.2005.10.039.
- Khalighinejad, Navid, M. Reza Aminoshariae, Anita Aminoshariae, James C. Kulild, Andre Mickel, and Ashraf F. Fouad. "Association between Systemic Diseases and Apical Periodontitis." *Journal of Endodontics* 42, no. 10 (October 2016): 1427–34. https://doi.org/10.1016/j.joen.2016.07.007.
- Lechner, Johann, and Volker von Baehr. "Stimulation of Proinflammatory Cytokines by Volatile Sulfur Compounds in Endodontically Treated Teeth." *International Journal of General Medicine* 8 (2015): 109–18. https://doi.org/10.2147/IJGM.S77693.
- Lechner, Johann, and Wolfgang Mayer. "Mitochondrial Function and Root-Filled Teeth - Detrimental and Unknown Interfaces in Systemic Immune Diseases." *International Journal of General Medicine* 13 (2020): 387–402. https://doi.org/10.2147/IJGM.S258170.
- Lechner, Johann, and Baehr Vv. "Impact of Endodontically Treated Teeth on Systemic Diseases." *Dentistry* 8, no. 476 (2018): 2161–1122.
- Li, Xiaojing, Kristin M. Kolltveit, Leif Tronstad, and Ingar Olsen. "Systemic Diseases Caused by Oral Infection." *Clinical Microbiology Reviews* 13, no. 4 (October 2000): 547–58.
- Liljestrand, J. M., P. Mäntylä, S. Paju, K. Buhlin, K. a. E. Kopra, G. R. Persson, M. Hernandez, et al. "Association of Endodontic Lesions with Coronary Artery Disease." *Journal of Dental Research* 95, no. 12 (November 2016): 1358–65. https://doi.org/10.1177/0022034516660509.
- López-López, José, Enric Jané-Salas, Albert Estrugo-Devesa, Eugenio Velasco-Ortega, Jenifer Martín-González, and Juan José Segura-Egea. "Periapical and Endodontic Status of Type 2 Diabetic Patients in Catalonia, Spain: A Cross-Sectional Study." *Journal of Endodontics* 37, no. 5 (May 2011): 598–601. https://doi.org/10.1016/j.joen.2011.01.002.
- MARINHO, Ariane Cassia Salustiano, Frederico Canato MARTINHO, Alexandre Augusto ZAIA, Caio Cezar Randi FERRAZ, and Brenda Paula Figueiredo de Almeida GOMES. "Monitoring the Effectiveness of Root Canal Procedures on Endotoxin Levels Found in Teeth with Chronic Apical Periodontitis." *Journal of Applied Oral Science* 22, no. 6 (2014): 490–95. https://doi.org/10.1590/1678-775720130664.
- Murray, C. A., and W. P. Saunders. "Root Canal Treatment and General Health: A Review of the Literature." *International Endodontic Journal* 33, no. 1 (January 2000): 1–18. https://doi.org/10.1046/j.1365-2591.2000.00293.x.
- "NFO Review of Current Research Regarding Rt Canal Treatment.Docx," n.d.
- Niazi, Sadia Ambreen, and Abdulaziz Bakhsh. "Association between Endodontic Infection, Its Treatment and Systemic Health: A Narrative Review." *Medicina (Kaunas, Lithuania)* 58, no. 7 (July 14, 2022): 931. https://doi.org/10.3390/medicina58070931.
- Pasqualini, Damiano, Loredana Bergandi, Luigi Palumbo, Alberto Borraccino, Valentina Dambra, Mario Alovisi, Giuseppe Migliaretti, et al. "Association among Oral Health, Apical Periodontitis, CD14 Polymorphisms, and Coronary Heart Disease in Middle-Aged Adults." *Journal of Endodontics* 38, no. 12 (December 2012): 1570–77. https://doi.org/10.1016/j.joen.2012.08.013.

- Pérez-Losada, Flor de Liz, Albert Estrugo-Devesa, Lissett Castellanos-Cosano, Juan José Segura-Egea, José López-López, and Eugenio Velasco-Ortega. "Apical Periodontitis and Diabetes Mellitus Type 2: A Systematic Review and Meta-Analysis." *Journal of Clinical Medicine* 9, no. 2 (February 17, 2020). https://doi.org/10.3390/jcm9020540.
- Pessi, Tanja, Vesa Karhunen, Pasi P Karjalainen, Antti Ylitalo, Juhani K Airaksinen, Matti Niemi, Mikko Pietila, et al. "Bacterial Signatures in Thrombus Aspirates of Patients With Myocardial Infarction," n.d., 10.
- Poyato-Borrego, Manuel, Juan J. Segura-Sampedro, Jenifer Martín-González, Yolanda Torres-Domínguez, Eugenio Velasco-Ortega, and Juan J. Segura-Egea. "High Prevalence of Apical Periodontitis in Patients With Inflammatory Bowel Disease: An Age- and Gender- Matched Case-Control Study." *Inflammatory Bowel Diseases* 26, no. 2 (January 6, 2020): 273–79. https://doi.org/10.1093/ibd/izz128.
- Richardson, N., N. J. Mordan, J. a. P. Figueiredo, Y.-L. Ng, and K. Gulabivala. "Microflora in Teeth Associated with Apical Periodontitis: A Methodological Observational Study Comparing Two Protocols and Three Microscopy Techniques." *International Endodontic Journal* 42, no. 10 (October 2009): 908–21. https://doi.org/10.1111/j.1365-2591.2009.01594.x.
- "Root Canals Are a Primary Cause of Chronic Disease.Docx," n.d.
- Schick, Fabian, Johann Lechner, and Florian Notter. "Linking Dentistry and Chronic Inflammatory Autoimmune Diseases - Can Oral and Jawbone Stressors Affect Systemic Symptoms of Atopic Dermatitis? A Case Report." *International Medical Case Reports Journal* 15 (2022): 323–38. https://doi.org/10.2147/IMCRJ.S367434.
- Segura-Egea, J. J., J. Martín-González, and L. Castellanos-Cosano. "Endodontic Medicine: Connections between Apical Periodontitis and Systemic Diseases." *International Endodontic Journal* 48, no. 10 (2015): 933–51.
- Segura-Egea, Juan J., Jenifer Martín-González, Daniel Cabanillas-Balsera, Ashraf F. Fouad, Eugenio Velasco-Ortega, and José López-López. "Association between Diabetes and the Prevalence of Radiolucent Periapical Lesions in Root-Filled Teeth: Systematic Review and Meta-Analysis." *Clinical Oral Investigations* 20, no. 6 (July 2016): 1133–41. https://doi.org/10.1007/s00784-016-1805-4.
- Siqueira, J. F., M. De Uzeda, and M. E. Fonseca. "A Scanning Electron Microscopic Evaluation of in Vitro Dentinal Tubules Penetration by Selected Anaerobic Bacteria." *Journal of Endodontics* 22, no. 6 (June 1996): 308–10. https://doi.org/10.1016/S0099-2399(96)80265-2.
- Sisli, Selen Nihal. "Evaluation of the Relationship between Type II Diabetes Mellitus and the Prevalence of Apical Periodontitis in Root-Filled Teeth Using Cone Beam Computed Tomography: An Observational Cross-Sectional Study." *Medical Principles and Practice: International Journal of the Kuwait University, Health Science Centre* 28, no. 6 (2019): 533–38. https://doi.org/10.1159/000500472.
- Smadi, Leena. "Apical Periodontitis and Endodontic Treatment in Patients with Type II Diabetes Mellitus: Comparative Cross-Sectional Survey." *The Journal of Contemporary Dental Practice* 18, no. 5 (May 1, 2017): 358–62. https://doi.org/10.5005/jp-journals-10024-2046.
- Sobieszczański, Jarosław, Sebastian Mertowski, Katarzyna Sarna-Boś, Piotr Stachurski, Ewelina Grywalska, and Renata Chałas. "Root Canal Infection and Its Impact on the Oral Cavity Microenvironment in the Context of Immune System Disorders in Selected Diseases: A Narrative Review." *Journal of Clinical Medicine* 12, no. 12 (June 17, 2023): 4102. https://doi.org/10.3390/jcm12124102.
- Suprewicz, Łukasz, Grażyna Tokajuk, Mateusz Cieśluk, Piotr Deptuła, Teresa Sierpińska, Przemysław Wolak, Tomasz Wollny, et al. "Bacteria Residing at Root Canals Can Induce Cell Proliferation and Alter the Mechanical Properties of Gingival and Cancer Cells." *International Journal of Molecular Sciences* 21, no. 21 (October 24, 2020): 7914. https://doi.org/10.3390/ijms21217914.
- "Systemic and Extraradicular Bacterial Translocation in Apical Periodontitis - PubMed." Accessed March 30, 2024. https://pubmed.ncbi.nlm.nih.gov/33816354/.
- Teixeira, Quésia Euclides, Dennis de Carvalho Ferreira, Alexandre Marques Paes da Silva, Lucio Souza Gonçalves, Fabio Ramoa Pires, Florence Carrouel, Denis Bourgeois, Irna Sufiawati, and Luciana Armada. "Aging as a Risk Factor on the Immunoexpression of Pro-Inflammatory IL-1β, IL-6 and TNF-α Cytokines in Chronic Apical Periodontitis Lesions." *Biology* 11, no. 1 (December 23, 2021): 14. https://doi.org/10.3390/biology11010014.

- Tibúrcio-Machado, C. S., C. Michelon, F. B. Zanatta, M. S. Gomes, J. A. Marin, and C. A. Bier. "The Global Prevalence of Apical Periodontitis: A Systematic Review and Meta-Analysis." *International Endodontic Journal* 54, no. 5 (May 2021): 712–35. https://doi.org/10.1111/iej.13467.
- Vasconcelos e Cruz, Joana, Florian Notter, Fabian Schick, and Johann Lechner. "Comparison of Cytokine RANTES/CCL5 Inflammation in Apical Periodontitis and in Jawbone Cavitations – Retrospective Clinical Study." *Journal of Inflammation Research* 17 (January 5, 2024): 67–80. https://doi.org/10.2147/JIR.S442693.
- Virtanen, Eunice, Tapio Nurmi, Per-Östen Söder, Stella Airila-Månsson, Birgitta Söder, and Jukka H. Meurman. "Apical Periodontitis Associates with Cardiovascular Diseases: A Cross-Sectional Study from Sweden." *BMC Oral Health* 17, no. 1 (July 11, 2017): 107. https://doi.org/10.1186/s12903-017-0401-6.
- Wang, Chih-Hao, Ling-Huey Chueh, Shih-Chung Chen, Yen-Chen Feng, Chuhsing K. Hsiao, and Chun-Pin Chiang. "Impact of Diabetes Mellitus, Hypertension, and Coronary Artery Disease on Tooth Extraction after Nonsurgical Endodontic Treatment." *Journal of Endodontics* 37, no. 1 (January 2011): 1–5. https://doi.org/10.1016/j.joen.2010.08.054.
- Willershausen, Brita, Adrian Kasaj, Ines Willershausen, Denisa Zahorka, Benjamin Briseño, Maria Blettner, Sabine Genth-Zotz, and Thomas Münzel. "Association between Chronic Dental Infection and Acute Myocardial Infarction." *Journal of Endodontics* 35, no. 5 (May 2009): 626–30. https://doi.org/10.1016/j.joen.2009.01.012.
- Wu, M. K., and P. R. Wesselink. "[Local and potential systemic consequences of endodontic root infection]." *Nederlands Tijdschrift Voor Tandheelkunde* 112, no. 11 (November 2005): 416–19.

RESEARCH DATABASE

Titanium

- Cadosch, Dieter, Mohamed S. Al-Mushaiqri, Oliver P. Gautschi, James Meagher, Hans-Peter Simmen, and Luis Filgueira. "Biocorrosion and Uptake of Titanium by Human Osteoclasts." *Journal of Biomedical Materials Research. Part A* 95, no. 4 (December 15, 2010): 1004–10. https://doi.org/10.1002/jbm.a.32914.
- Chaturvedi, Tp. "Allergy Related to Dental Implant and Its Clinical Significance." *Clinical, Cosmetic and Investigational Dentistry* 5 (2013): 57–61. https://doi.org/10.2147/CCIDE.S35170.
- Evrard, L., D. Waroquier, and D. Parent. "[Allergies to dental metals. Titanium: a new allergen]." *Revue Medicale De Bruxelles* 31, no. 1 (2010): 44–49.
- Gaur, Sumit, Rupali Agnihotri, and Sacharia Albin. "Bio-Tribocorrosion of Titanium Dental Implants and Its Toxicological Implications: A Scoping Review." *TheScientificWorldJournal* 2022 (2022): 4498613. https://doi.org/10.1155/2022/4498613.
- Noronha Oliveira, M., W. V. H. Schunemann, M. T. Mathew, B. Henriques, R. S. Magini, W. Teughels, and J. C. M. Souza. "Can Degradation Products Released from Dental Implants Affect Peri-Implant Tissues?" *Journal of Periodontal Research* 53, no. 1 (February 2018): 1–11. https://doi.org/10.1111/jre.12479.
- Noumbissi, Sammy, Antonio Scarano, and Saurabh Gupta. "A Literature Review Study on Atomic Ions Dissolution of Titanium and Its Alloys in Implant Dentistry." *Materials (Basel, Switzerland)* 12, no. 3 (January 24, 2019): 368. https://doi.org/10.3390/ma12030368.
- Altay, Berkan, and Elif Çoban. "Dental Implant Corrosion Products May Accumulate in the Human Body." *Journal of Oral and Maxillofacial Surgery* 82, no. 1 (January 1, 2024): 56–64. https://doi.org/10.1016/j.joms.2023.09.022.
- Apaza-Bedoya, K., M. Tarce, C. a. M. Benfatti, B. Henriques, M. T. Mathew, W. Teughels, and J. C. M. Souza. "Synergistic Interactions between Corrosion and Wear at Titanium-Based Dental Implant Connections: A Scoping Review." *Journal of Periodontal Research* 52, no. 6 (December 2017): 946–54. https://doi.org/10.1111/jre.12469.
- Clever, K., K. A. Schlegel, H. Kniha, G. Conrads, L. Rink, A. Modabber, F. Hölzle, and K. Kniha. "Experimental Peri-Implant Mucositis around Titanium and Zirconia Implants in Comparison to a Natural Tooth: Part 2-Clinical and Microbiological Parameters." *International Journal of Oral and Maxillofacial Surgery* 48, no. 4 (April 2019): 560–65. https://doi.org/10.1016/j.ijom.2018.10.017.
- Clever, Kim, Karl Andreas Schlegel, Heinz Kniha, Georg Conrads, Lothar Rink, Ali Modabber, Frank Hölzle, and Kristian Kniha. "Experimental Peri-Implant Mucositis around Titanium and Zirconia Implants in Comparison to a Natural Tooth: Part 1-Host-Derived Immunological Parameters." *International Journal of Oral and Maxillofacial Surgery* 48, no. 4 (April 2019): 554–59. https://doi.org/10.1016/j.ijom.2018.10.018.
- Delgado-Ruiz, Rafael, and Georgios Romanos. "Potential Causes of Titanium Particle and Ion Release in Implant Dentistry: A Systematic Review." *International Journal of Molecular Sciences* 19, no. 11 (November 13, 2018): 3585. https://doi.org/10.3390/ijms19113585.
- "FDA Biological Responses to Metal Implants," n.d.
- Fretwurst, T., K. Nelson, D. P. Tarnow, H.-L. Wang, and W. V. Giannobile. "Is Metal Particle Release Associated with Peri-Implant Bone Destruction? An Emerging Concept." *Journal of Dental Research* 97, no. 3 (March 2018): 259–65. https://doi.org/10.1177/0022034517740560.
- Gittens, R. A., R. Olivares-Navarrete, R. Tannenbaum, B. D. Boyan, and Z. Schwartz. "Electrical Implications of Corrosion for Osseointegration of Titanium Implants." *Journal of Dental Research* 90, no. 12 (December

2011): 1389–97. https://doi.org/10.1177/0022034511408428.
- Golvano, I., I. Garcia, A. Conde, W. Tato, and A. Aginagalde. “Influence of Fluoride Content and PH on Corrosion and Tribocorrosion Behaviour of Ti13Nb13Zr Alloy in Oral Environment.” *Journal of the Mechanical Behavior of Biomedical Materials* 49 (September 2015): 186–96. https://doi.org/10.1016/j.jmbbm.2015.05.008.
- “Increased Levels of Dissolved Titanium Are Associated with Peri-Implantitis - a Cross-Sectional Study.” *British Dental Journal* 223, no. 3 (August 11, 2017): 203. https://doi.org/10.1038/sj.bdj.2017.669.
- Messous, Redouane, Bruno Henriques, Hassan Bousbaa, Filipe S. Silva, Wim Teughels, and Júlio C. M. Souza. “Cytotoxic Effects of Submicron- and Nano-Scale Titanium Debris Released from Dental Implants: An Integrative Review.” *Clinical Oral Investigations* 25, no. 4 (April 2021): 1627–40. https://doi.org/10.1007/s00784-021-03785-z.
- Olmedo, Daniel G., Gabriela Nalli, Sergio Verdú, María L. Paparella, and Rómulo L. Cabrini. “Exfoliative Cytology and Titanium Dental Implants: A Pilot Study.” *Journal of Periodontology* 84, no. 1 (January 2013): 78–83. https://doi.org/10.1902/jop.2012.110757.
- Přikrylová, Jana, Jarmila Procházková, and Štěpán Podzimek. “Side Effects of Dental Metal Implants: Impact on Human Health (Metal as a Risk Factor of Implantologic Treatment).” *BioMed Research International* 2019 (July 10, 2019): 1–5. https://doi.org/10.1155/2019/2519205.
- Safioti, Luciana M., Georgios A. Kotsakis, Alex E. Pozhitkov, Whasun O. Chung, and Diane M. Daubert. “Increased Levels of Dissolved Titanium Are Associated With Peri-Implantitis - A Cross-Sectional Study.” *Journal of Periodontology* 88, no. 5 (May 2017): 436–42. https://doi.org/10.1902/jop.2016.160524.
- Saito, Masako, Rieko Arakaki, Akiko Yamada, Takaaki Tsunematsu, Yasusei Kudo, and Naozumi Ishimaru. “Molecular Mechanisms of Nickel Allergy.” *International Journal of Molecular Sciences* 17, no. 2 (February 2, 2016): E202. https://doi.org/10.3390/ijms17020202.
- Song, Ning, Da-Qing Liao, Fei Liu, Yan-Yan Zhang, Jiu Lin, Hang Wang, and Jie-Fei Shen. “Effect of Titanium Particles on the Voltage-Gated Potassium Channel Currents in Trigeminal Root Ganglion Neurons.” *Implant Dentistry* 28, no. 1 (February 2019): 54–61. https://doi.org/10.1097/ID.0000000000000848.
- Sterner, Thomas, Norbert Schütze, Guido Saxler, Franz Jakob, and Christof P. Rader. “[Effects of clinically relevant alumina ceramic, zirconia ceramic and titanium particles of different sizes and concentrations on TNF-alpha release in a human macrophage cell line].” *Biomedizinische Technik. Biomedical Engineering* 49, no. 12 (December 2004): 340–44. https://doi.org/10.1515/BMT.2004.063.
- Suárez-López Del Amo, Fernando, Carlos Garaicoa-Pazmiño, Tobias Fretwurst, Rogerio M. Castilho, and Cristiane H. Squarize. “Dental Implants-Associated Release of Titanium Particles: A Systematic Review.” *Clinical Oral Implants Research* 29, no. 11 (November 2018): 1085–1100. https://doi.org/10.1111/clr.13372.
- Wang, Xin, Yu Li, Yuan Feng, Haode Cheng, and Dehua Li. “Macrophage Polarization in Aseptic Bone Resorption around Dental Implants Induced by Ti Particles in a Murine Model.” *Journal of Periodontal Research* 54, no. 4 (August 2019): 329–38. https://doi.org/10.1111/jre.12633.
- Bilhan, Hakan, Canan Bural, and Onur Geckili. “Titanium Hypersensitivity. A Hidden Threat for Dental Implant Patients?” *The New York State Dental Journal* 79, no. 4 (July 2013): 38–43.
- Carey Iv, Patrick H., Shu-Min Hsu, Chaker Fares, George Kamenov, Fan Ren, and Josephine Esquivel-Upshaw. “The Galvanic Effect of Titanium and Amalgam in the Oral Environment.” *Materials (Basel, Switzerland)* 13, no. 19 (October 5, 2020): E4425. https://doi.org/10.3390/ma13194425.
- Daubert, Diane, Alexander Pozhitkov, Jeffrey McLean, and Georgios Kotsakis. “Titanium as a Modifier of the Peri-Implant Microbiome Structure.” *Clinical Implant Dentistry and Related Research* 20, no. 6 (December 2018): 945–53. https://doi.org/10.1111/cid.12676.
- Lechner, Johann, Sammy Noumbissi, and Volker von Baehr. “Titanium Implants and Silent Inflammation in Jawbone-a Critical Interplay of Dissolved Titanium Particles and Cytokines TNF-α and RANTES/CCL5 on Overall Health?” *The EPMA Journal* 9, no. 3 (September 2018): 331–43. https://doi.org/10.1007/s13167-018-0138-6.
- Mombelli, Andrea, Dena Hashim, and Norbert Cionca. “What Is the Impact of Titanium Particles and Biocorrosion on Implant Survival and Complications? A Critical Review.” *Clinical Oral Implants Research* 29 Suppl 18 (October 2018): 37–53. https://doi.org/10.1111/clr.13305.

- Penmetsa, Shree Lakshmi Deepika, Rucha Shah, Raison Thomas, Amanna Baron Tarun Kumar, Pamidimarri Sai Divya Gayatri, and Dhoom Singh Mehta. “Titanium Particles in Tissues from Peri-Implant Mucositis: An Exfoliative Cytology-Based Pilot Study.” *Journal of Indian Society of Periodontology* 21, no. 3 (2017): 192–94. https://doi.org/10.4103/jisp.jisp_184_16.
- Rodrigues, Danieli C., Pilar Valderrama, Thomas G. Wilson, Kelli Palmer, Anie Thomas, Sathyanarayanan Sridhar, Arvind Adapalli, Maria Burbano, and Chandur Wadhwani. “Titanium Corrosion Mechanisms in the Oral Environment: A Retrieval Study.” *Materials (Basel, Switzerland)* 6, no. 11 (November 15, 2013): 5258–74. https://doi.org/10.3390/ma6115258.
- Shah, Rucha, Deepika Shree Lakshmi Penmetsa, Raison Thomas, and Dhoom Singh Mehta. “Titanium Corrosion: Implications For Dental Implants.” *The European Journal of Prosthodontics and Restorative Dentistry* 24, no. 4 (December 2016): 171–80. https://doi.org/10.1922/EJPRD_1531Shah10.
- Siddiqi, Allauddin, Alan G. T. Payne, Rohana Kumara De Silva, and Warwick J. Duncan. “Titanium Allergy: Could It Affect Dental Implant Integration?” *Clinical Oral Implants Research* 22, no. 7 (July 2011): 673–80. https://doi.org/10.1111/j.1600-0501.2010.02081.x.
- Soler, Mailis D., Shu-Min Hsu, Chaker Fares, Fan Ren, Renita J. Jenkins, Luiz Gonzaga, Arthur E. Clark, Edgar O’Neill, Dan Neal, and Josephine F. Esquivel-Upshaw. “Titanium Corrosion in Peri-Implantitis.” *Materials (Basel, Switzerland)* 13, no. 23 (December 2, 2020): E5488. https://doi.org/10.3390/ma13235488.
- Souza, João G. S., Bárbara E. Costa Oliveira, Martinna Bertolini, Carolina Veloso Lima, Belén Retamal-Valdes, Marcelo de Faveri, Magda Feres, and Valentim A. R. Barão. “Titanium Particles and Ions Favor Dysbiosis in Oral Biofilms.” *Journal of Periodontal Research* 55, no. 2 (April 2020): 258–66. https://doi.org/10.1111/jre.12711.
- Tibau, Anita V., Blanche D. Grube, Braulio J. Velez, Victor M. Vega, and Joachim Mutter. “Titanium Exposure and Human Health.” *Oral Science International* 16, no. 1 (2019): 15–24. https://doi.org/10.1002/osi2.1001.
- Zhou, Zilan, Quan Shi, Jie Wang, Xiaohang Chen, Yujia Hao, Yuan Zhang, and Xing Wang. “The Unfavorable Role of Titanium Particles Released from Dental Implants.” *Nanotheranostics* 5, no. 3 (2021): 321–32. https://doi.org/10.7150/ntno.56401.
- Olmedo, Daniel Gustavo, Deborah Tasat, Gustavo Sergio Duffó, Rómulo Cabrini, and Maria Beatriz Guglielmotti. *Systemic and Local Tissue Response to Titanium Corrosion*. *Pitting Corrosion*. IntechOpen, 2012. https://ri.conicet.gov.ar/handle/11336/127705.

RESEARCH DATABASE

Metals

- Albrektsson, Tomas, Bruno Chrcanovic, Johan Mölne, and Ann Wennerberg. "Foreign Body Reactions, Marginal Bone Loss and Allergies in Relation to Titanium Implants." *European Journal of Oral Implantology* 11 Suppl 1 (2018): S37–46.
- Alnazzawi, Ahmad. "Effect of Fixed Metallic Oral Appliances on Oral Health." *Journal of International Society of Preventive & Community Dentistry* 8, no. 2 (April 2018): 93–98. https://doi.org/10.4103/jispcd.JISPCD_416_17.
- Amanna, Evette Natasha, Sham S. Bhat, and Sundeep K. Hegde. "An in Vitro Evaluation of Nickel and Chromium Release from Different Commercially Available Stainless Steel Crowns." *Journal of the Indian Society of Pedodontics and Preventive Dentistry* 37, no. 1 (March 2019): 31–38. https://doi.org/10.4103/JISPPD.JISPPD_176_17.
- Arvidson, B. "Accumulation of Mercury in Brainstem Nuclei of Mice after Retrograde Axonal Transport." *Acta Neurologica Scandinavica* 82, no. 4 (October 1990): 234–37. https://doi.org/10.1111/j.1600-0404.1990.tb01612.x.
- Basir, Leila, Razieh Meshki, Azam Behbudi, and Vahid Rakhshan. "Effects of Restoring the Primary Dentition with Stainless-Steel Crowns on Children's Salivary Nickel and Chromium Levels, and the Associations with Saliva PH: A Preliminary Before-After Clinical Trial." *Biological Trace Element Research* 187, no. 1 (January 2019): 65–73. https://doi.org/10.1007/s12011-018-1376-0.
- "Biological Responses to Metal Implants (FDA Report 2019)," n.d., 149.
- Chaturvedi, Tp. "Allergy Related to Dental Implant and Its Clinical Significance." *Clinical, Cosmetic and Investigational Dentistry* 5 (2013): 57–61. https://doi.org/10.2147/CCIDE.S35170.
- Comino-Garayoa, Rubén, Jorge Cortés-Bretón Brinkmann, Jesús Peláez, Carlos López-Suárez, Jose María Martínez-González, and María Jesús Suárez. "Allergies to Titanium Dental Implants: What Do We Really Know about Them? A Scoping Review." *Biology* 9, no. 11 (November 18, 2020): E404. https://doi.org/10.3390/biology9110404.
- Geier, David A., and Mark R. Geier. "Dental Amalgams and the Incidence Rate of Arthritis among American Adults." *Clinical Medicine Insights. Arthritis and Musculoskeletal Disorders* 14 (2021): 11795441211016260. https://doi.org/10.1177/11795441211016261.
- Hosoki, Maki, Keisuke Nishigawa, Youji Miyamoto, Go Ohe, and Yoshizo Matsuka. "Allergic Contact Dermatitis Caused by Titanium Screws and Dental Implants." *Journal of Prosthodontic Research* 60, no. 3 (July 2016): 213–19. https://doi.org/10.1016/j.jpor.2015.12.004.
- Keinan, David, Eliyahu Mass, and Uri Zilberman. "Absorption of Nickel, Chromium, and Iron by the Root Surface of Primary Molars Covered with Stainless Steel Crowns." *International Journal of Dentistry* 2010 (2010): 326124. https://doi.org/10.1155/2010/326124.
- Kim, Kyeong Tae, Mi Young Eo, Truc Thi Hoang Nguyen, and Soung Min Kim. "General Review of Titanium Toxicity." *International Journal of Implant Dentistry* 5 (March 11, 2019): 10. https://doi.org/10.1186/s40729-019-0162-x.
- Lundström, I. M. "Allergy and Corrosion of Dental Materials in Patients with Oral Lichen Planus." *International Journal of Oral Surgery* 13, no. 1 (February 1984): 16–24. https://doi.org/10.1016/s0300-9785(84)80051-4.

- Martin, Mary Beth, Ronald Reiter, Trung Pham, Yaniris R. Avellanet, Johanna Camara, Michael Lahm, Elisabeth Pentecost, et al. “Estrogen-like Activity of Metals in MCF-7 Breast Cancer Cells.” *Endocrinology* 144, no. 6 (June 2003): 2425–36. https://doi.org/10.1210/en.2002-221054.
- McGinley, Emma Louise, Gary P. Moran, and Garry J. P. Fleming. “Biocompatibility Effects of Indirect Exposure of Base-Metal Dental Casting Alloys to a Human-Derived Three-Dimensional Oral Mucosal Model.” *Journal of Dentistry* 41, no. 11 (November 2013): 1091–1100. https://doi.org/10.1016/j.jdent.2013.08.010.
- Noronha Oliveira, M., W. V. H. Schunemann, M. T. Mathew, B. Henriques, R. S. Magini, W. Teughels, and J. C. M. Souza. “Can Degradation Products Released from Dental Implants Affect Peri-Implant Tissues?” *Journal of Periodontal Research* 53, no. 1 (February 2018): 1–11. https://doi.org/10.1111/jre.12479.
- Olmedo, Daniel G., Gabriela Nalli, Sergio Verdú, María L. Paparella, and Rómulo L. Cabrini. “Exfoliative Cytology and Titanium Dental Implants: A Pilot Study.” *Journal of Periodontology* 84, no. 1 (January 2013): 78–83. https://doi.org/10.1902/jop.2012.110757.
- Podzimek, Stepan, Milan Tomka, Pavla Sommerova, Yelena Lyuya-Mi, Jirina Bartova, and Jarmila Prochazkova. “Immune Markers in Oral Discomfort Patients before and after Elimination of Oral Galvanism.” *Neuro Endocrinology Letters* 34, no. 8 (2013): 802–8.
- Roach, Michael. “Base Metal Alloys Used for Dental Restorations and Implants.” *Dental Clinics of North America* 51, no. 3 (July 2007): 603–27, vi. https://doi.org/10.1016/j.cden.2007.04.001.
- Rodríguez, Juliana, and Patricia Mónica Mandalunis. “A Review of Metal Exposure and Its Effects on Bone Health.” *Journal of Toxicology* 2018 (2018): 4854152. https://doi.org/10.1155/2018/4854152.
- Safioti, Luciana M., Georgios A. Kotsakis, Alex E. Pozhitkov, Whasun O. Chung, and Diane M. Daubert. “Increased Levels of Dissolved Titanium Are Associated With Peri-Implantitis - A Cross-Sectional Study.” *Journal of Periodontology* 88, no. 5 (May 2017): 436–42. https://doi.org/10.1902/jop.2016.160524.
- Savić, Ines, Andrija Bošnjak, Nataša Beader, Željka Lovrić, Adi Salihagić, and Ivo Gašparac. “Anaerobic Bacteria in Implants and Homologous Teeth 2-14 Years after Implantation.” *Acta Stomatologica Croatica* 52, no. 3 (September 2018): 193–202. https://doi.org/10.15644/asc52/3/3.
- Schmalz, Gottfried, and Pauline Garhammer. “Biological Interactions of Dental Cast Alloys with Oral Tissues.” *Dental Materials: Official Publication of the Academy of Dental Materials* 18, no. 5 (July 2002): 396–406. https://doi.org/10.1016/s0109-5641(01)00063-x.
- Shafizadeh, Marziyeh, Reza Amid, Masoumeh Mahmoum, and Mahdi Kadkhodazadeh. “Histopathological Characterization of Peri-Implant Diseases: A Systematic Review and Meta-Analysis.” *Archives of Oral Biology* 132 (December 2021): 105288. https://doi.org/10.1016/j.archoralbio.2021.105288.
- Song, Ning, Da-Qing Liao, Fei Liu, Yan-Yan Zhang, Jiu Lin, Hang Wang, and Jie-Fei Shen. “Effect of Titanium Particles on the Voltage-Gated Potassium Channel Currents in Trigeminal Root Ganglion Neurons.” *Implant Dentistry* 28, no. 1 (February 2019): 54–61. https://doi.org/10.1097/ID.0000000000000848.
- Stejskal, Vera, Romuald Hudecek, Jenny Stejskal, and Ivan Sterzl. “Diagnosis and Treatment of Metal-Induced Side-Effects.” *Neuro Endocrinology Letters* 27 Suppl 1 (December 2006): 7–16.
- Yilmaz, A., C. E. Ozdemir, and Y. Yilmaz. “A Delayed Hypersensitivity Reaction to a Stainless Steel Crown: A Case Report.” *The Journal of Clinical Pediatric Dentistry* 36, no. 3 (2012): 235–38. https://doi.org/10.17796/jcpd.36.3.d1327wn32361u04n.
- Zafar, Sobia, and Allauddin Siddiqi. “Biological Responses to Pediatric Stainless Steel Crowns.” *Journal of Oral Science* 62, no. 3 (June 23, 2020): 245–49. https://doi.org/10.2334/josnusd.20-0083.
- Bilhan, Hakan, Canan Bural, and Onur Geckili. “Titanium Hypersensitivity. A Hidden Threat for Dental Implant Patients?” *The New York State Dental Journal* 79, no. 4 (July 2013): 38–43.
- Birla, Hareram, Tarun Minocha, Gaurav Kumar, Anamika Misra, and Sandeep Kumar Singh. “Role of Oxidative Stress and Metal Toxicity in the Progression of Alzheimer’s Disease.” *Current Neuropharmacology* 18, no. 7 (July 28, 2020): 552–62. https://doi.org/10.2174/1570159X18666200122122512.
- Bjørklund, Geir, Massimiliano Peana, Maryam Dadar, Salvatore Chirumbolo, Jan Aaseth, and Natália Martins. “Mercury-Induced Autoimmunity: Drifting from Micro to Macro Concerns on Autoimmune Disorders.” *Clinical Immunology (Orlando, Fla.)* 213 (April 2020): 108352. https://doi.org/10.1016/j.clim.2020.108352.

- Cabaña-Muñoz, María Eugenia, José María Parmigiani-Izquierdo, Luis Alberto Bravo-González, Hee-Moon Kyung, and José Joaquín Merino. “Increased Zn/Glutathione Levels and Higher Superoxide Dismutase-1 Activity as Biomarkers of Oxidative Stress in Women with Long-Term Dental Amalgam Fillings: Correlation between Mercury/Aluminium Levels (in Hair) and Antioxidant Systems in Plasma.” *PloS One* 10, no. 6 (2015): e0126339. https://doi.org/10.1371/journal.pone.0126339.
- Cariccio, Veronica Lanza, Annalisa Samà, Placido Bramanti, and Emanuela Mazzon. “Mercury Involvement in Neuronal Damage and in Neurodegenerative Diseases.” *Biological Trace Element Research* 187, no. 2 (February 2019): 341–56. https://doi.org/10.1007/s12011-018-1380-4.
- Farkhondeh, Tahereh, Reza Afshari, Omid Mehrpour, and Saeed Samarghandian. “Mercury and Atherosclerosis: Cell Biology, Pathophysiology, and Epidemiological Studies.” *Biological Trace Element Research* 196, no. 1 (July 2020): 27–36. https://doi.org/10.1007/s12011-019-01899-w.
- Fretwurst, T., K. Nelson, D. P. Tarnow, H.-L. Wang, and W. V. Giannobile. “Is Metal Particle Release Associated with Peri-Implant Bone Destruction? An Emerging Concept.” *Journal of Dental Research* 97, no. 3 (March 2018): 259–65. https://doi.org/10.1177/0022034517740560.
- Guo, Hongrui, Huan Liu, Hongbin Wu, Hengmin Cui, Jing Fang, Zhicai Zuo, Junliang Deng, Yinglun Li, Xun Wang, and Ling Zhao. “Nickel Carcinogenesis Mechanism: DNA Damage.” *International Journal of Molecular Sciences* 20, no. 19 (September 21, 2019): E4690. https://doi.org/10.3390/ijms20194690.
- Homme, Kristin G, David C Kennedy, and Michael Aschner. “Pervasive, Unsafe Exposures to Mercury and Fluoride, Developmental Toxicants That Are Biologically Plausible Causal Agents in the Jaw Epidemic.” *BioScience* 71, no. 1 (January 8, 2021): 5–6. https://doi.org/10.1093/biosci/biaa127.
- Hybenova, Monika, Pavlina Hrda, Jarmila Procházková, Vera Stejskal, and Ivan Sterzl. “The Role of Environmental Factors in Autoimmune Thyroiditis.” *Neuro Endocrinology Letters* 31, no. 3 (2010): 283–89.
- Jafari Mohammadabadi, Hamed, Aryoobarzan Rahmatian, Fatemeh Sayehmiri, and Mohammad Rafiei. “The Relationship Between the Level of Copper, Lead, Mercury and Autism Disorders: A Meta-Analysis.” *Pediatric Health, Medicine and Therapeutics* 11 (2020): 369–78. https://doi.org/10.2147/PHMT.S210042.
- Korraah, Ahmed, Margarete Odenthal, Marion Kopp, Nadarajah Vigneswaran, Peter G. Sacks, Hans Peter Dienes, Hartmut Stützer, and Wilhelm Niedermeier. “Induction of Apoptosis and Up-Regulation of Cellular Proliferation in Oral Leukoplakia Cell Lines inside Electric Field.” *Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology* 113, no. 5 (May 2012): 644–54. https://doi.org/10.1016/j.oooo.2011.11.016.
- Lebedev, K. A., and I. D. Poniakina. “[The center of pathological (toxic) action of metals in an people organisms and a role of galvanic currents in its induction].” *Fiziologiia Cheloveka* 37, no. 4 (August 2011): 90–97.
- Lechner, Johann, Sammy Noumbissi, and Volker von Baehr. “Titanium Implants and Silent Inflammation in Jawbone-a Critical Interplay of Dissolved Titanium Particles and Cytokines TNF-α and RANTES/CCL5 on Overall Health?” *The EPMA Journal* 9, no. 3 (September 2018): 331–43. https://doi.org/10.1007/s13167-018-0138-6.
- Lu, Yin, Weiqing Chen, Wei Ke, and Shaohua Wu. “Nickel-Based (Ni-Cr and Ni-Cr-Be) Alloys Used in Dental Restorations May Be a Potential Cause for Immune-Mediated Hypersensitivity.” *Medical Hypotheses* 73, no. 5 (November 2009): 716–17. https://doi.org/10.1016/j.mehy.2009.04.041.
- Martin, Michael D., Steven Broughton, and Mark Drangsholt. “Oral Lichen Planus and Dental Materials: A Case-Control Study.” *Contact Dermatitis* 48, no. 6 (June 2003): 331–36. https://doi.org/10.1034/j.1600-0536.2003.00146.x.
- Olmedo, Daniel G., Déborah R. Tasat, Gustavo Duffó, Maria B. Guglielmotti, and Rómulo L. Cabrini. “The Issue of Corrosion in Dental Implants: A Review.” *Acta Odontologica Latinoamericana: AOL* 22, no. 1 (2009): 3–9.
- Přikrylová, Jana, Jarmila Procházková, and Štěpán Podzimek. “Side Effects of Dental Metal Implants: Impact on Human Health (Metal as a Risk Factor of Implantologic Treatment).” *BioMed Research International* 2019 (July 10, 2019): 1–5. https://doi.org/10.1155/2019/2519205.
- Saito, Masako, Rieko Arakaki, Akiko Yamada, Takaaki Tsunematsu, Yasusei Kudo, and Naozumi Ishimaru. “Molecular Mechanisms of Nickel Allergy.” *International Journal of Molecular Sciences* 17, no. 2 (February 2, 2016): E202. https://doi.org/10.3390/ijms17020202.

- Singh, Rajsandeep, Gurvanit Lehl, Arshad Bin Hussain, Tejal Nivrutti Abhang, Manisha Mangesh Kulkarni, Mohamed Fadul A. Elagib, and Rahul V. C. Tiwari. "Prevalence of Titanium Hypersensitivity in Patients with Titanium Implants: A Systematic Review and Meta-Analysis." *Journal of Pharmacy & Bioallied Sciences* 13, no. Suppl 2 (November 2021): S1345–49. https://doi.org/10.4103/jpbs.jpbs_159_21.
- Soler, Mailis D., Shu-Min Hsu, Chaker Fares, Fan Ren, Renita J. Jenkins, Luiz Gonzaga, Arthur E. Clark, Edgar O'Neill, Dan Neal, and Josephine F. Esquivel-Upshaw. "Titanium Corrosion in Peri-Implantitis." *Materials (Basel, Switzerland)* 13, no. 23 (December 2, 2020): E5488. https://doi.org/10.3390/ma13235488.
- Souza, João G. S., Bárbara E. Costa Oliveira, Martinna Bertolini, Carolina Veloso Lima, Belén Retamal-Valdes, Marcelo de Faveri, Magda Feres, and Valentim A. R. Barão. "Titanium Particles and Ions Favor Dysbiosis in Oral Biofilms." *Journal of Periodontal Research* 55, no. 2 (April 2020): 258–66. https://doi.org/10.1111/jre.12711.
- Souza-Rodrigues, Renata Duarte de, Bruna Puty, Laís Bonfim, Lygia Sega Nogueira, Priscila Cunha Nascimento, Leonardo Oliveira Bittencourt, Roberta Souza D'Almeida Couto, et al. "Methylmercury-Induced Cytotoxicity and Oxidative Biochemistry Impairment in Dental Pulp Stem Cells: The First Toxicological Findings." *PeerJ* 9 (2021): e11114. https://doi.org/10.7717/peerj.11114.
- Summers, A. O., J. Wireman, M. J. Vimy, F. L. Lorscheider, B. Marshall, S. B. Levy, S. Bennett, and L. Billard. "Mercury Released from Dental 'Silver' Fillings Provokes an Increase in Mercury- and Antibiotic-Resistant Bacteria in Oral and Intestinal Floras of Primates." *Antimicrobial Agents and Chemotherapy* 37, no. 4 (April 1993): 825–34. https://doi.org/10.1128/AAC.37.4.825.
- Yan, Huijiao, Shaista Afroz, Junhel Dalanon, Nami Goto, Maki Hosoki, and Yoshizo Matsuka. "Metal Allergy Patient Treated by Titanium Implant Denture: A Case Report with at Least 4-Year Follow-Up." *Clinical Case Reports* 6, no. 10 (October 2018): 1972–77. https://doi.org/10.1002/ccr3.1753.
- Zambelli, Barbara, Vladimir N. Uversky, and Stefano Ciurli. "Nickel Impact on Human Health: An Intrinsic Disorder Perspective." *Biochimica Et Biophysica Acta* 1864, no. 12 (December 2016): 1714–31. https://doi.org/10.1016/j.bbapap.2016.09.008.