

## Lechner wird mit Publikationen zitiert in.....

Stand: 31-01-2022

1. Mangelsdorf I, Walach H, Mutter J. Healing of Amyotrophic Lateral Sclerosis: A Case Report. *Complement Med Res* 2017;24:175–181. DOI: 10.1159/000477397

### References:

Lechner J, von Baehr V: RANTES and fibroblast growth factor 2 in jawbone cavitations: triggers for systemic disease? *Int J Gen Med* 2013;6:277-290.

Lechner J, Mayer W: Immune messengers in neuralgia inducing cavitational osteonecrosis (NICO) in jaw bone and systemic interference. *Eur J Integr Med* 2010;2:71-77.

2. Díaz Pérez, C. A., Barreiro Mendoza, G. N., & Martínez Rodríguez, M. (2018). Dolor crónico del maxilar. Presentación de un caso. *Revista Información Científica*, 97(1), 175-182.

### References

Lechner J, Von Baehr V. Peripheral Neuropathic Facial/Trigeminal Pain and Rantes/Ccl5 in Jawbone Cavitation. *Evidence-Based Complementary and Alternative Medicine*. 2015.

3. 洪帆, 梁江萍, 秦婷婷, 夏俊, & 徐洋. (2015). 乳腺癌患者化疗后乙肝病毒再激活及拉米夫定预防性应用的临床研究. *现代生物医学进展*, (8), 1505-1508.

Translation:

Clinical Study of HBV Reactivation and Prophylactic Application of Lamivudine in Breast Cancer Patients after Chemotherapy

Keywords: breastcancer; HBV; Chemotherapy; Liverfunction damage; HBV reactivation

### References

[2]Lechner J, von Baehr V. Hyperactivated Signaling Pathways of Chemokine RANTES/CCL5 in Osteopathies of Jawbone in Breast Cancer Patients – Case Report and Research [J]. *Breast Cancer (Auckl)*, 2014,8:89-96

4. Tormod B. Krüger, Bente B. Herlofson, Maria A. Landin & Janne E. Reseland (2016): Alendronate alters osteoblast activities, *Acta Odontologica Scandinavica*, DOI: 10.1080/00016357.2016.1217041

## References

Lechner J, von Baehr V. Chemokine RANTES/CCL5 as an unknown link between wound healing in the jawbone and systemic disease: is prediction and tailored treatments in the horizon? *EPMA J.* 2015;6:10.

5. Naveau, A., Shinmyouzu, K., Moore, C., Avivi-Arber, L., Jokerst, J., & Koka, S. (2019). Etiology and measurement of peri-implant crestal bone loss (CBL). *Journal of clinical medicine*, 8(2), 166.

## References

Lechner, J., Noumbissi, S., & von Baehr, V. (2018). Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health?. *EPMA Journal*, 9(3), 331-343.

6. Polli, A., Van Oosterwijck, J., Nijs, J., Marusic, U., De Wandele, I., Paul, L., ... & Ickmans, K. (2019). Relationship between exercise-induced oxidative stress changes and parasympathetic activity in chronic fatigue syndrome: an observational study in patients and healthy subjects. *Clinical therapeutics*, 41(4), 641-655.

## References

Lechner J, Huesker K, von Baehr V. **Impact of RANTES from Jawbone on Chronic Fatigue Syndrome.** *J Biol Regul Homeost Agents.* 2017 Apr-Jun;31(2):321-327.

7. Noumbissi, S., Scarano, A., & Gupta, S. (2019). A Literature Review Study on Atomic Ions Dissolution of Titanium and Its Alloys in Implant Dentistry. *Materials*, 12(3), 368.

## References

30. Lechner, J., Noumbissi, S., & von Baehr, V. (2018). Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health?. *EPMA Journal*, 9(3), 331-343.

8. Qin, X., Li, Q., Chen, W., Bai, Y., Baban, B., & Mao, J. (2019). The circadian expression of osteogenic factors in periodontal tissue loading mechanical force: new concepts of the personalized orthodontic care. *EPMA Journal*, 10(1), 13-20.

## References

37. Lechner, J., Noumbissi, S., & von Baehr, V. (2018). Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health?. *EPMA Journal*, 9(3), 331-343.

9. Wang, Y., Qi, H., Miron, R. J., & Zhang, Y. (2019). Modulating macrophage polarization on titanium implant surface by poly (dopamine)-assisted immobilization of IL4. *Clinical implant dentistry and related research.*

## References

Lechner, J., Noubissi, S., & von Baehr, V. (2018). Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health?. *EPMA Journal*, 9(3), 331-343.

10. Krüger, T. B., Herlofson, B. B., Landin, M. A., & Reseland, J. E. (2016). Alendronate alters osteoblast activities. *Acta Odontologica Scandinavica*, 74(7), 550-557.

## References

Lechner J, von Baehr V. Chemokine RANTES/CCL5 as an unknown link between wound healing in the jawbone and systemic disease: is prediction and tailored treatments in the horizon? *EPMA J.* 2015;6:10.

11. Merino, J. J., Cabaña-Muñoz, M. E., Toledano Gasca, A., Garcimartín, A., Benedí, J., Camacho-Alonso, F., & Parmigiani-Izquierdo, J. M. (2019). Elevated Systemic L-Kynurenine/L-Tryptophan Ratio and Increased IL-1 Beta and Chemokine (CX3CL1, MCP-1) Proinflammatory Mediators in Patients with Long-Term Titanium Dental Implants. *Journal of Clinical Medicine*, 8(9), 1368.

## References

48. Lechner, J.; Noubissi, S.; von Baehr, V. Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health? *EPMA J.* 2018, 9, 331–343.

51. Lechner, J.; von Baehr, V. RANTES and fibroblast growth factor 2 in jawbone cavitations: Triggers for systemic disease? *Int. J. Gen. Med.* 2013, 6, 277–290.

12. Van Cleave C, Crans DC. The First-Row Transition Metals in the Periodic Table of Medicine. *Inorganics* 2019, 7, 111; doi:10.3390/inorganics7090111

51. Lechner, J.; Noubissi, S.; von Baehr, V. Titanium implants and silent inflammation in jawbone—A critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health? *EPMA J.* 2018, 9, 331–343. [CrossRef]

13. Cadenas Martín M, Tirado I, Martín E, Ardura JA, Bravo B, Gortazar AR. Efectos de la estimulación mecánica en la comunicación entre células óseas. *Rev Osteoporos Metab Miner.* 2019;11(1):12-18

Correspondencia: Arancha R. Gortázar (argortazar@ceu.es)

22. Lechner J, von Baehr V. Chemokine RANTES/CCL5 as an unknown link between wound healing in the jaw-bone and systemic disease: is prediction and tailored treatments in the horizon? *EPMA J.* 2015;6(1):10.

**14. Borys J, et al. Free Radical Production, Inflammation and Apoptosis in Patients Treated With Titanium Mandibular Fixations-An Observational Study.** November 2019. *Frontiers in Immunology* 10:2662. DOI: 10.3389/fimmu.2019.02662

"... ol of osteoclast precursors, and promote the survival of osteoclasts by increasing their activity (30,46). TNF- $\alpha$  also increases RANKL expression in osteoblasts and bone marrow cells (46). ..."

30. Lechner J, Noubissi S, von Baehr V. Titanium implants and silent inflammation in jawbone-a critical interplay of dissolved titanium particles and cytokines TNF-a and RANTES/CCL5 on

**15. Lilli NL, Révy D, Robelet S, Lejeune B. Effect of the micro-immunotherapy medicine 2LPARK® on rat primary dopaminergic neurons after 6-OHDA injury: oxidative stress and survival evaluation in an in vitro model of Parkinson's disease.** July 2019. DOI: 10.2147/DNND.S202966

Thomas G, Cluzel H, Lafon J, Bruhwylér J, Lejeune B. Efficacy of 2LPAPI®, a micro-immunotherapy drug, in patients with high-risk papillomavirus genital infection. *AID*. 2016;6(01):7–14. doi:10.4236/aid.2016.61002

16. Floris I, Lechner J, Lejeune B. Follow-up of patients with systemic immunological diseases undergoing fatty-degenerative osteolysis of the jawbone surgery and treated with RANTES 27CH. *J Biol Regul Homeost Agents*. 2018;32(1):37–45.

17. Sauer H, Oertel WH. Progressive degeneration of nigrostriatal dopamine neurons following intrastriatal terminal lesions with 6-hydroxydopamine: a combined retrograde tracing and immunocytochemical study in the rat. *Neuroscience*. 1994;59(2):401–415.

**16. Gürkan, Ali et al.: Cytokine, chemokine, and growth factor levels in peri-implant sulcus during wound healing and osseointegration after piezosurgical versus conventional implant site preparation: Randomized, controlled, split-mouth trial. Journal of Periodontology. Volume: 90. Issue: 6. 2019**

clasts. *Endocrinol*. 2005;146:2324–2335. 40. Hoff P, Gaber T, Strehl C, et al. A pronounced inflammatory activity characterizes the early fracture healing phase in immunologically restricted patients. *IntJMolSci*. 2017;18:E583. <https://doi.org/10.3390/ijms18030583>

41. Lechner J, von Baehr V. Chemokine RANTES/CCL5 as an unknown link between wound healing in the jawbone and systemic disease: is prediction and tailored treatments in the horizon? *EPMA J*. 2015;6:10. <https://doi.org/10.1186/s13167-015-0032-4>

42. Okamatsu Y, Kim D, Battaglino R, Sasaki H, Späte U,

Stashenko P. MIP1 gamma promotes receptor-activator-of-NF-kappa-B- ligand induced osteoclast formation and survival. J Immunol. 2004;173:2084–2090.

**17. Alison Barry et al. Plasma IL-8 signature correlates with pain and depressive symptomatology in patients with Burning Mouth Syndrome: results from a pilot study. December 2017. Journal of Oral Pathology and Medicine 47(Suppl 1). DOI: 10.1111/jop.12666**

13. Coelho SC, Bastos-Pereira AL, Fraga D, Chichorro JG, Zampronio AR. Etanercept reduces thermal and mechanical orofacial hyperalgesia following inflammation and neuropathic injury. Eur J Pain. 2014;18:957-967.

14. Lechner J, von Baehr V. Peripheral neuropathic facial/trigeminal pain and RANTES/CCL5 in jawbone cavitation. Evid Based Complement Alternat Med. 2015;2015:582520.

15. Liu Y, Ho RC, Mak A. Interleukin (IL)-6, tumour necrosis factor alpha (TNF-alpha) and soluble interleukin-2 receptors (sIL-2R) are elevated in patients with major depressive disorder: a meta-analysis and meta-regression. J Affect Disord. 2012;139:230-239.

**18. Peiyao Wu, et al. Possible Mechanisms Involved in the Cooccurrence of Oral Lichen Planus and Hashimoto's Thyroiditis: February 2020; Mediators of Inflammation 2020(2):1-9. DOI: [10.1155/2020/6309238](https://doi.org/10.1155/2020/6309238)**

[57] P. Fallahi, S. M. Ferrari, G. Elia et al., "Novel therapies for thyroid autoimmune diseases," Expert Review of Clinical Pharmacology, vol. 9, no. 6, pp. 853–861, 2016.

[58] J. Lechner, T. Rudi, and V. von Baehr, "Osteoimmunology of tumor necrosis factor-alpha, IL-6, and RANTES/CCL5: a review of known and poorly understood inflammatory patterns in osteonecrosis," Clinical, Cosmetic and Investigational Dentistry, vol. Volume 10, pp. 251–262, 2018.

[59] M. R. Roopashree, R. V. Gondhalekar, M. C. Shashikanth, J. George, S. H. Thippeswamy, and A. Shukla, "Pathogenesis of oral lichen planus-a review," Journal of Oral Pathology & Medicine, vol. 39, no. 10, pp. 729–734, 2010.

**19. Li Z, Zhu X, Xu R, Wang Y, Hu R and Xu W (2019) Deacylcynaropicrin Inhibits RANKL-Induced Osteoclastogenesis by Inhibiting NF-κB and MAPK and Promoting M2 Polarization of Macrophages Front. Pharmacol. 10:599.doi: 10.3389/fphar.2019.00599**

Kimura, K., Kitaura, H., Fujii, T., Hakami, Z. W., and Takano-Yamamoto, T. (2012). Anti-c-Fms antibody inhibits lipopolysaccharide-induced osteoclastogenesis *in vivo*. *FEMS Immunol. Med. Microbiol.* 64 (2), 219– 227. doi: 10.1111/j.1574-695X.2011.00888.x

Lechner, J., Rudi, T., and von Baehr, V. (2018). Osteoimmunology of tumor necrosis factor-alpha, IL-6, and RANTES/CCL5: a review of known and poorly understood inflammatory patterns in osteonecrosis. *Clin. Cosmet. Investig. Dent.* 10, 251–262. doi:10.2147/CCIDE.S184498

Lin, T. H., Yao, Z., Sato, T., Keeney, M., Li, C., Pajarinen, J., et al. (2014). Suppression of wear-particle-induced pro-inflammatory cytokine and chemokine production in macrophages *via* NF-kappaB decoy oligodeoxynucleotide: a preliminary report. *Acta Biomater.* 10 (8), 3747–3755. doi: 10.1016/j.actbio.2014.04.034

**20. Cadenas Martin M, Tirado I, Martin E, Ardura JA, Bravo B, Gortazar AR. Effects of mechanical stimulation on communication between bone cells. Rev Osteoporos Metab Miner. 2019;11(1):12-18. DOI: <http://dx.doi.org/10.4321/S1889-836X2019000100003>**

21. Ryan CM, Brown JA, Bourke E, Prendergast AM, Kavanagh C, Liu Z, et al. ROCK activity and the Gβγ complex mediate chemotactic migration of mouse bone marrow-derived stromal cells. *Stem Cell Res Ther.* 2015;6:136.

22. Lechner J, von Baehr V. Chemokine RANTES/CCL5 as an unknown link between wound healing in the jawbone and systemic disease: is prediction and tailored treatments in the horizon? *EPMA J.* 2015;6(1):10.

22. Lu L, Zhang X, Zhang M, Zhang H, Liao L, Yang T, et al. RANTES and SDF-1 Are Keys in Cell-based Therapy of TMJ Osteoarthritis. *J Dent Res.* 2015;94(11):1601-9.

**23. Pereira S, et al. Recent advances in the understanding of the aetiology and therapeutic strategies in burning mouth syndrome: Focus on the actions of cannabinoids. Feb 2020 · European Journal of Neuroscience. <https://doi.org/10.1111/ejn.14712>**

📄 Lamey, P. J., Freeman, R., Eddie, S. A., Pankhurst, C., & Rees, T. (2005). Vulnerability and presenting symptoms in burning mouth syndrome. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*, 99, 48– 54.

[Crossref PubMed Web of Science®Google Scholar](#)

📄 Lechner, J., & von Baehr, V. (2015). Peripheral neuropathic facial/trigeminal pain and RANTES/CCL5 in Jawbone Cavitation. *Evidence-Based Complementary and Alternative Medicine*, 2015, 582520.

[Crossref PubMed Google Scholar](#)

📄 Lee, Y. C., Hong, I. K., Na, S. Y., & Eun, Y. G. (2015). Evaluation of salivary function in patients with burning mouth syndrome. *Oral Diseases*, 21, 308– 313.

[Wiley Online Library CAS PubMed Web of Science®Google Scholar](#)

**24. Peiyao Wu et al. Possible Mechanisms Involved in the Cooccurrence of Oral Lichen Planus and Hashimoto's Thyroiditis. February 2020; Mediators of Inflammation 2020(2):1-9. DOI: [10.1155/2020/6309238](https://doi.org/10.1155/2020/6309238)**

[57] P. Fallahi, S. M. Ferrari, G. Elia et al., "Novel therapies for thyroid autoimmune diseases," *Expert Review of Clinical Pharmacology*, vol. 9, no. 6, pp. 853–861, 2016.

[58] J. Lechner, T. Rudi, and V. von Baehr, "Osteoimmunology of tumor necrosis factor-alpha, IL-6, and RANTES/CCL5: a review of known and poorly understood inflammatory patterns in osteonecrosis," *Clinical, Cosmetic and Investigational Dentistry*, vol. Volume 10, pp. 251–262, 2018.

[59] M. R. Roopashree, R. V. Gondhalekar, M. C. Shashikanth, J. George, S. H. Thippeswamy, and A. Shukla, "Pathogenesis of oral lichen planus—a review," *Journal of Oral Pathology & Medicine*, vol. 39, no. 10, pp. 729–734, 2010.

**25. Moalem-Taylor G, Baharuddin B, Bennett B, et al. Immune dysregulation in patients with carpal tunnel syndrome. *Sci Rep.* 2017;7(1):8218. Published 2017 Aug 15. doi:10.1038/s41598-017-08123-6**

... CCL5 and VEGF were identified as having the highest power to discriminate between patients and controls.

57. White FA, Jung H, Miller RJ. Chemokines and the pathophysiology of neuropathic pain. *Proc Natl Acad Sci USA.* 2007;104:20151–20158. doi: 10.1073/pnas.0709250104. - [DOI](#) - [PMC](#) - [PubMed](#)

58. Lechner J, von Baehr V. Peripheral Neuropathic Facial/Trigeminal Pain and RANTES/CCL5 in Jawbone Cavitation. *Evid Based Complement Alternat Med.* 2015;2015:582520. doi: 10.1155/2015/582520. - [DOI](#) - [PMC](#) - [PubMed](#)

59. Liou JT, et al. Peritoneal administration of Met-RANTES attenuates inflammatory and nociceptive responses in a murine neuropathic pain model. *J Pain.* 2013;14:24–35. doi: 10.1016/j.jpain.2012.09.015. - [DOI](#) - [PubMed](#)

**26. Sammy Noubissi S, Scarano A, Gupta S. A Literature Review Study on Atomic Ions Dissolution of Titanium and Its Alloys in Implant Dentistry. *Materials* 2019, 12, 368; doi:10.3390/ma12030368**

29. Fretwurst, T.; Nelson, K.; Tarnow, D.P.; Wang, H.-L.; Giannobile, W.V. Is Metal Particle Release Associated with Peri-implant Bone Destruction? An Emerging Concept. *J. Dent. Res.* 2018. [[CrossRef](#)] [[PubMed](#)]

30. Lechner, J.; Noubissi, S.; von Baehr, V. Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health? *EPMA J.* **2018**, *9*, 331–343. [[CrossRef](#)]
31. Safioti, L.M.; Kotsakis, G.A.; Pozhitkov, A.E.; Chung, W.O.; Daubert, D.M. Increased Levels of Dissolved Titanium Are Associated With Peri-Implantitis—A Cross-Sectional Study. *J. Periodontol.* **2017**, *88*, 436–442. [[CrossRef](#)]

**27. Schäfer E, Appel C. Relevance of mercaptans/ thio ethers regulations in therapy decisions in endodontics Scientific Notification of the German Society of Endodontology and Dental Traumatology. DOI: [10.3238/dzz-int.2020.0050-0051](https://doi.org/10.3238/dzz-int.2020.0050-0051)**

... According to a current review on this topic [1] only 2 publications from the dental field are available in PubMed [2,3]. Therefore methyl mercaptans and thioethers present metabolic products of some bacteria found in root canals during the metabolization of peptides rich in cysteine, glutathione and L-methio nine [2]. ...

2. Jacobi-Gresser E, Schütt S, Huesker K, von Baehr V: Methyl mercaptan and hydrogen sulfide products stimulate proinflammatory cytokines in patients with necrotic pulp tissue and endodontically treated teeth. *J Biol Regul Homeost Agents* 2015; 29: 73–843.

3. Lechner J, von Baehr V: Stimulation of proinflammatory cytokines by volatile sulfur compounds in endodontically treated teeth. *Int J Gen Dent* 2015; 29: 73–844.

4. Suzuki N et al.: Detection of Helicobacter pylori DNA in the saliva of patients complaining of halitosis. *J Med Microbiol* 2008; 57: 1553–1559. Walshe JM: Foetor hepaticus. *Lancet* 1994; 343: 7306.

**28. Gorgieva S. Bacterial Cellulose as a Versatile Platform for Research and Development of Biomedical Materials. *Processes* 2020, 8, 624; doi:10.3390/pr8050624**

Voicu, G.; Jinga, S.I.; Drosu, B.G.; Busuioc, C. Improvement of silicate cement properties with bacterial cellulose powder addition for applications in dentistry. *Carbohydr. Polym.* **2017**, *174*, 160–170. [[CrossRef](#)]

103. Lechner, J.; Noubissi, S.; von Baehr, V. Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health? *EPMA J.* **2018**, *9*, 331–343. [[CrossRef](#)]

104. Abeer, M.M.; Mohd Amin, M.C.I.; Martin, C. A review of bacterial cellulose-based drug delivery systems: Their biochemistry, current approaches and future prospects. *J. Pharm. Pharmacol.* **2014**, *66*, 1047–1061. [[CrossRef](#)]



- **29. Yuzhi Yao Y, Bowen C, Li Sh. Relationship of Inflammation with Trigeminal Neuralgia: A Cohort Study. October 2019. Journal of Craniofacial Surgery 31(2):.DOI: 10.1097/SCS.0000000000005879**

6. Coelho SC, Bastos-Pereira AL, Fraga D, et al. Etanercept reduces thermal and mechanical orofacial hyperalgesia following inflammation and neuropathic injury. *Eur J Pain* 2014;18:957–9677.

7. Johann Lechner, Volker von Baehr. Peripheral Neuropathic Facial/Trigeminal Pain and RANTES/CCL5 in Jawbone Cavitation. *Evid Based Complement Alternat Med* 2015;2015:5825208.

8. Shi-hao Zheng, Jin-lan Huang, Ming Chen, et al. Diagnostic value of preoperative inflammatory markers in patients with glioma: a multicenter cohort study. *J Neurosurg* 2018;129:583–592.

- 30. Xingchen Ye et al. A correlative studies between osteoporosis and blood cell composition: Implications for auxiliary diagnosis of osteoporosis. June 2020. Medicine 99(26):e20864. DOI: 10.1097/MD.0000000000020864.**

[14] Kwon OC, Kim S, Hong S, et al. Role of IL-32 gamma on bone metabolism in autoimmune arthritis. *Immune Netw* 2018;18:e20.

[15] Lechner J, Rudi T, von Baehr V. Osteoimmunology of tumor necrosis factor-alpha, IL-6, and RANTES/CCL5: a review of known and poorly understood inflammatory patterns in osteonecrosis. *Clin Cosmet Investig Dent* 2018;10:251–62.

[16] Niu X, Chen Y, Qi L, et al. Hypoxia regulates angiogenic-osteogenic coupling process via up-regulating IL-6 and IL-8 in human osteoblastic cells through hypoxia-inducible factor-1 (pathway). *Cytokine* 2019;113:117–27.

- 31. Wen Lin Chai, Masfueh Razali, Keyvan Moharamzadeh, Muhammad Sohail Zafar, 10 - The hard and soft tissue interfaces with dental implants, Editor(s): Muhammad Sohail Zafar, Zohaib Khurshid, Abdul Samad Khan, Shariq Najeeb, Farshid Sefat, In Woodhead Publishing Series in Biomaterials, Dental Implants, Woodhead Publishing, 2020, Pages 173-201, ISBN 9780128195864, <https://doi.org/10.1016/B978-0-12-819586-4.00010-X>.**

Koutouzis et al., 2011

T. Koutouzis, S. Wallet, N. Calderon, T. Lundgren **Bacterial colonization of the implant–abutment interface using an in vitro dynamic loading model**

J. Periodontol., 82 (4) (2011), pp. 613-618

[CrossRefView Record in Scopus](#)[Google Scholar](#)

J. Lechner, S. Noumbissi, V. von Baehr. **Titanium implants and silent inflammation in jawbone - a critical interplay of dissolved titanium particles and cytokines TNF-alpha and RANTES/CCL5 on overall health?** EPMA J., 9 (3) (2018), pp. 331-343. [CrossRefView Record in Scopus](#)[Google Scholar](#)

Lee et al., 2015

C.T. Lee, S.K. Chuang, J. Stoupe **Survival analysis and other clinical outcomes of immediate implant placement in sites with periapical lesions: systematic review**

Int. J. Oral Maxillofac Implants, 30 (2) (2015), pp. 268-278

[CrossRefView Record in Scopus](#)[Google Scholar](#)

**32. Lilli NL, Révy D, Robelet S, Lejeune B. Effect of the micro-immunotherapy medicine 2LPARK<sup>®</sup> on rat primary dopaminergic neurons after 6-OHDA injury: oxidative stress and survival evaluation in an in vitro model of Parkinson's disease. *Degener Neurol Neuromuscul Dis.* 2019;9:79-88. Published 2019 Jul 8. doi:10.2147/DNND.S202966**

15. Thomas G, Cluzel H, Lafon J, Bruhwylter J, Lejeune B. Efficacy of 2LPAPI<sup>®</sup>, a micro-immunotherapy drug, in patients with high-risk papillomavirus genital infection. *AID.* 2016;6(01):7–14. doi:10.4236/aid.2016.61002 [[CrossRef](#)] [[Google Scholar](#)]

16. Floris I, Lechner J, Lejeune B. Follow-up of patients with systemic immunological diseases undergoing fatty-degenerative osteolysis of the jawbone surgery and treated with RANTES 27CH. *J Biol Regul Homeost Agents.* 2018;32(1):37–45. [[PubMed](#)] [[Google Scholar](#)]

17. Sauer H, Oertel WH. Progressive degeneration of nigrostriatal dopamine neurons following intrastratial terminal lesions with 6-hydroxydopamine: a combined retrograde tracing and immunocytochemical study in the rat. *Neuroscience.* 1994;59(2):401–415. [[PubMed](#)] [[Google Scholar](#)]

**33. Peiyao Wu et al. Possible Mechanisms Involved in the Cooccurrence of Oral Lichen Planus and Hashimoto's Thyroiditis, February 2020; Mediators of Inflammation 2020(2):1-9. DOI: [10.1155/2020/6309238](#)**

.. Several current ongoing studies are focused on exploring innovative HT therapies by developing and evaluating new molecules that can antagonize CXCR3 or block CXCL10 [57].

[58] J. Lechner, T. Rudi, and V. von Baehr, "Osteoimmunology of tumor necrosis factor-alpha, IL-6, and RANTES/CCL5: a review of known and poorly understood inflammatory patterns in osteonecrosis," *Clinical, Cosmetic and Investigational Dentistry*, vol. Volume 10, pp. 251–262, 2018.

RANTES plays a crucial role in the recruitment of lymphocytes, monocytes, natural killer cells, eosinophils, basophils, and mast cells in OLP [59].

- **34. Pérez EA, et al. Epigenetic Components of Myalgic Encephalomyelitis/Chronic Fatigue Syndrome Uncover Potential Transposable Element Activation. April 2019. Clinical Therapeutics 41(4):675-698. DOI: [10.1016/j.clinthera.2019.02.012](https://doi.org/10.1016/j.clinthera.2019.02.012)**

- - 124. Mastrangelo F, Frydas I, Ronconi G, et al. Low-grade chronic inflammation mediated by mast cells in fibromyalgia: role of IL-37. *J Biol Regul Homeost Agents*. 2018 Mar-Apr; 32: 195-198
  - 
  - **125. Lechner J, Huesker K, Von Baehr V. Impact of rantes from jawbone on chronic fatigue syndrome. *J Biol Regul Homeost Agents*. 2017 Apr-Jun; 31: 321-327.**
  - 
  - 126. Mayer J, Harz C, Sanchez L, et al. Transcriptional profiling of HERV-K(HML-2) in amyotrophic lateral sclerosis and potential implications for expression of HML-2 proteins. *Mol Neurodegener*. 2018 Aug 2; 13: 39 <https://doi.org/10.1186/s13024-018-0275-3>
  -

- **35. Meng, B, Wu, D, Cheng, Y, et al. Interleukin-20 differentially regulates bone mesenchymal stem cell activities in RANKL-induced osteoclastogenesis through the OPG/RANKL/RANK axis and the NF- $\kappa$ B, MAPK and AKT signalling pathways. *Scand J Immunol*. 2020; 91:e12874. <https://doi.org/10.1111/sji.12874>**

45. Danks L, Komatsu N, Guerrini MM, et al. RANKL expressed on synovial fibroblasts is primarily responsible for bone erosions during joint inflammation. *Annals of the rheumatic diseases* 2016; 75(6): 1187-95.

**46. Lechner J, Rudi T, von Baehr V. Osteoimmunology of tumor necrosis factor-alpha, IL-6, and RANTES/CCL5: a review of known and poorly understood inflammatory patterns in osteonecrosis. *Clin Cosmet Investig Dent* 2018; 10: 251-62.**

47. Mansky KC, Sankar U, Han J, Ostrowski MC. Microphthalmia transcription factor is a target of the p38 MAPK pathway in response to receptor activator of NF-kappa B ligand signaling. *J Biol Chem* 2002; 277(13): 11077-83.

- **36. Xingchen Ye et al. A correlative studies between osteoporosis and blood cell composition: Implications for auxiliary diagnosis of osteoporosis. June 2020; *Medicine* 99(26):e20864. DOI: [10.1097/MD.00000000000020864](https://doi.org/10.1097/MD.00000000000020864)**

- 14] Kwon OC, Kim S, Hong S, et al. Role of IL-32 gamma on bone metabolism in autoimmune arthritis. *Immune Netw* 2018;18:e20.
- 
- [15] Lechner J, Rudi T, von Baehr V. Osteoimmunology of tumor necrosis factor-alpha, IL-6, and RANTES/CCL5: a review of known and poorly understood inflammatory patterns in osteonecrosis. *Clin Cosmet Investig Dent* 2018;10:251-62.
-

- [16] Niu X, Chen Y, Qi L, et al. Hypoxia regulates angiogenic-osteogenic coupling process via up-regulating IL-6 and IL-8 in human osteoblastic cells through hypoxia-inducible factor-1 (pathway). *Cytokine* 2019;113:117–27.

**37. Sónia Pereira et al. Recent advances in the understanding of the aetiology and therapeutic strategies in burning mouth syndrome: Focus on the actions of cannabinoids. February 2020. European Journal of Neuroscience. DOI: 10.1111/ejn.14712**

94. Lamey, P. J., Freeman, R., Eddie, S. A., Pankhurst, C., & Rees, T. (2005). Vulnerability and presenting symptoms in burning mouth syndrome. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*, 99, 48-54.
95. Lechner, J., & von Baehr, V. (2015). *Peripheral neuropathic facial/trigeminal pain and RANTES/CCL5 in Jawbone Cavitation. Evidence-Based Complementary and Alternative Medicine*, 2015, 582520.
96. Lee, Y. C., Hong, I. K., Na, S. Y., & Eun, Y. G. (2015). Evaluation of salivary function in patients with burning mouth syndrome. *Oral Diseases*, 21, 308-313.

**38. Relevance of mercaptans/ thioethers regulations in therapy decisions in endodontics - Scientific Notification of the German Society of Endodontology and Dental Traumatology. Article · March 2020. DOI: 10.3238/dzz-int.2020.0050-0051**

1. Hülsmann M: Die Theorie der Fokal- infektion reloaded. *Endodontie* 2019; 28: 315–327
2. Jacobi-Gresser E, Schütt S, Huesker K, von Baehr V: Methyl mercaptan and hydrogen sulfide products stimulate proinflammatory cytokines in patients with necrotic pulp tissue and endodontically treated teeth. *J Biol Regul Homeost Agents* 2015; 29: 73–84
3. Lechner J, von Baehr V: Stimulation of proinflammatory cytokines by volatile sulfur compounds in endodontically treated teeth. *Int J Gen Dent* 2015; 29: 73–84
4. Suzuki N et al.: Detection of Helicobacter pylori DNA in the saliva of patients complaining of halitosis. *J Med Microbiol* 2008; 57: 1553–1559

**39. Daltro PB, et al. CD4+T Cell Profile and Activation Response in Sickle Cell Disease Patients with Osteonecrosis. Mediators of Inflammation Volume 2020, Article ID 1747894, 12 pages <https://doi.org/10.1155/2020/1747894>**

- . Ma, J. Ge, F. Gao et al., "The role of immune regulatory cells in nontraumatic osteonecrosis of the femoral head: a retrospective clinical study," *BioMed Research International*, vol. 2019, Article ID 1302015, 7 pages, 2019.

[15] J. Lechner, S. Schuett, and V. von Baehr, "Aseptic-avascular osteonecrosis: local 'silent inflammation' in the jawbone and RANTES/CCL5 overexpression," *Clinical, Cosmetic and Investigational Dentistry*, vol. 9, pp. 99–109, 2017.

[16] J. Ma, W. Guo, Z. Li, B. Wang, S. Li, and P. Wang, "Hip osteonecrosis is associated with increased plasma IL-33 level," *Mediators of Inflammation*, vol. 2017, Article ID 1732638, 6 pages, 2017.

**40. Ali, Sadaqat et al.: Biocompatibility and corrosion resistance of metallic biomaterials. Corrosion Reviews. Volume: 38. Issue: 5. 2020. DOI: <https://doi.org/10.1515/correv-2020-0001>**

Langrard, S. (1990). One hundred years of chromium and cancer: a review of epidemiological evidence and selected case reports. *Am. J. Ind. Med.* 17: 189–214, <https://doi.org/10.1002/ajim.4700170205>.

- Lechner, J., Noubissi, S., and von Baehr, V. (2018). Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health?. *EPMA J.* 9: 331–343, <https://doi.org/10.1007/s13167-018-0138-6>.

Lemons, J.E., Misch-Dietsh, F., and McCracken, M.S. (2015). *Biomaterials for dental implants. In Dental implant prosthetics: Elsevier Inc*, pp. 66–94.

- **41. Floris I, et al. Pro-Inflammatory Cytokines at Ultra-Low Dose Exert Anti-Inflammatory Effect In Vitro: A Possible Mode of Action Involving Sub-Micron Particles? October 2020; Dose-Response 18(Oct-December):1-11. DOI: [10.1177/1559325820961723](https://doi.org/10.1177/1559325820961723)**

Thomas G, Cluzel H, Lafon J, Bruhwylter J, Lejeune B. Efficacy of 2LPAPI<sup>®</sup>, a micro-immunotherapy drug, in patients with high-risk papillomavirus genital infection. *Adv Infect Dis.* 2016;6(1):7-14.

13. Floris I, Lechner J, Lejeune B. Follow-up of patients with systemic immunological diseases undergoing fatty-degenerative osteolysis of the jawbone surgery and treated with RANTES27CH. *J Biol Regul Homeost Agents.* 2018;32(1):37-45.

14. Calabrese EJ. Hormetic dose-response relationships in immunology: occurrence, quantitative features of the dose response, mechanistic foundations, and clinical implications.

**42. Aleksandra Janas, Ewa Kruczek, Piotr Londzin, Sławomir Borymski, Zenon P. Czuba, Joanna Folwarczna, "Negligible Effect of Estrogen Deficiency on Development of Skeletal Changes Induced by Type 1 Diabetes in Experimental Rat Models", *Mediators of Inflammation*, vol. 2020, Article ID 2793804, 21 pages, 2020. <https://doi.org/10.1155/2020/2793804>**

59. S. Yano, R. Mentaverri, D. Kanuparthi et al., "Functional expression of  $\beta$ -chemokine receptors in osteoblasts: role of regulated upon activation, normal T cell expressed and secreted (RANTES) in osteoblasts and regulation of its secretion by osteoblasts and osteoclasts," *Endocrinology*, vol. 146, no. 5, pp. 2324–2335, 2005. View at: [Publisher Site](#) | [Google Scholar](#)

60. J. Lechner, T. Rudi, and V. von Baehr, "Osteoimmunology of tumor necrosis factor-alpha, IL-6, and RANTES/CCL5: a review of known and poorly understood inflammatory patterns in osteonecrosis," *Clinical, Cosmetic and Investigational Dentistry*, vol. 10, pp. 251–262, 2018. View at: [Publisher Site](#) | [Google Scholar](#)

61. O. M. Koper-Lenkiewicz, J. Kamińska, A. Lisowska, A. Milewska, T. Hirnle, and V. Dymicka-Piekarska, "Factors associated with RANTES concentration in cardiovascular disease patients," *BioMed Research International*, vol. 2019, Article ID 3026453, 11 pages, 2019. View at: [Publisher Site](#) | [Google Scholar](#)

**43. Carluccio M, et al. .Adult mesenchymal stem cells: is there a role for purine receptors in their osteogenic differentiation? Purinergic Signalling 16(9), September 2020. DOI: 10.1007/s11302-020-09703-4.**

Ganguly P, El-Jawhari JJ, Giannoudis PV et al (2017) Age-related changes in bone marrow mesenchymal stromal cells: a potential impact on osteoporosis and osteoarthritis development. *Cell Transplant* 26(9):1520–1529.  
<https://doi.org/10.1177/0963689717721201>

3. Lechner J, Aschoff J, Rudi T (2018) The vitamin D receptor and the etiology of RANTES/CCL-expressive fatty-degenerative osteolysis of the jawbone: an interface between osteoimmunology and bone metabolism. *Int J Gen Med* 11:155–166.  
<https://doi.org/10.2147/IJGMS152873>

4. Amini AR, Laurencin CT, Nukavarapu SP (2012) Bone tissue engineering: recent advances and challenges. *Crit Rev Biomed Eng* 40:363–408

**44. Zhao, Qing et al. [Human Periodontal Ligament Stem Cells Transplanted with Nanohydroxyapatite/chitosan/gelatin 3D Porous Scaffolds Promote Jaw Bone Regeneration in Swine](#). *Stem Cells and Development*. 27 Apr 2021 <https://doi.org/10.1089/scd.2020.0204>.**

65. Maruyama Z, CA Yoshida, T Furuichi, N Amizuka, M Ito, R Fukuyama, T Miyazaki, H Kitaura, K Nakamura, et al. (2007). Runx2 determines bone maturity and turnover rate in postnatal bone development and is involved in bone loss in estrogen deficiency. *Dev Dyn* 236:1876–1890.

66. Lechner J, T Schulz and V von Baehr. (2019). Immunohistological staining of unknown chemokine RANTES/CCL5 expression in jawbone marrow defects osteoimmunology and disruption of bone remodeling in clinical case studies targeting on predictive preventive personalized medicine. *EPMA J* 10:351–364.

67. Tosa I, D Yamada, M Yasumatsu, E Hinoi, M Ono, T Oohashi, T Kuboki and T Takarada. (2019). Postnatal Runx2 deletion leads to low bone mass and adipocyte accumulation in mice bone tissues. *Biochem Biophys Res Commun* 516:1229–1233.

68. Jiang Y, BN Jahagirdar, RL Reinhardt

**45. Sekundo, C, Wiltfang, J, Schliephake, H, et al. Neuralgia-inducing cavitation osteonecrosis – A systematic review. *Oral Dis.* 2021; 00: 1– 20. <https://doi.org/10.1111/odi.13886>**

---

- Lechner, J. (2014). Validation of dental X-ray by cytokine RANTES - comparison of X-ray findings with cytokine overexpression in jawbone. *Clinical Cosmetic & Investigational Dentistry*, **6**, 71– 79.
- Lechner, J., Aschoff, J., & Rudi, T. (2018). The vitamin D receptor and the etiology of RANTES/CCL-expressive fatty-degenerative osteolysis of the jawbone: An interface between osteoimmunology and bone metabolism. *International Journal of General Medicine*, **11**, 155– 166.
- Lechner, J., Huesker, K., & von Baehr, V. (2017). Impact of rantes from jawbone on chronic fatigue syndrome. *Journal of Biological Regulators & Homeostatic Agents*, **31**, 321– 327.
- Lechner, J., & Mayer, W. (2010). Immune messengers in Neuralgia Inducing Cavitation Osteonecrosis (NICO) in jaw bone and systemic interference. *European Journal of Integrative Medicine*, **2**, 71– 77. <https://doi.org/10.1016/j.eujim.2010.03.004>
- Lechner, J., Noubbissi, S., & von Baehr, V. (2018). Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF-alpha and RANTES/CCL5 on overall health? *The EPMA Journal*, **9**, 331– 343.
- Lechner, J., Schuett, S., & von Baehr, V. (2017). Aseptic-avascular osteonecrosis: Local "silent inflammation" in the jawbone and RANTES/CCL5 overexpression. *Clinical, Cosmetic and Investigational Dentistry*, **9**, 99– 109.
- Lechner, J., Schulz, T., & von Baehr, V. (2019). IMMUNohistological staining of unknown chemokine RANTES/CCL5 expression in jawbone marrow defects-osteoimmunology and disruption of bone remodeling in clinical case studies targeting on predictive preventive personalized medicine. *EPMA Journal*, **10**, 351– 364. <https://doi.org/10.1007/s13167-019-00182-1>
- Lechner, J., & von Baehr, V. (2013). RANTES and fibroblast growth factor 2 in jawbone cavitations: Triggers for systemic disease? *International Journal of General Medicine*, **6**, 277– 290. <https://doi.org/10.2147/IJGM.S43852>
- Lechner, J., & von Baehr, V. (2014). Hyperactivated signaling pathways of chemokine RANTES/CCL5 in osteopathies of jawbone in breast cancer patients-case report and research. *Breast Cancer*, **8**, 89– 96. <https://doi.org/10.4137/BCBCR.S15119>
- Lechner, J., & von Baehr, V. (2015a). Chemokine RANTES/CCL5 as an unknown link between wound healing in the jawbone and systemic disease: Is prediction and tailored treatments in the horizon? *The EPMA Journal*, **6**, 10. <https://doi.org/10.1186/s13167-015-0032-4>
- Lechner, J., & von Baehr, V. (2015b). Peripheral Neuropathic Facial/Trigeminal Pain and RANTES/CCL5 in Jawbone Cavitation. *Evidence-Based Complementary & Alternative Medicine: Ecam*, **2015**, 582520. <https://doi.org/10.1155/2015/582520>
- Lechner, J., Zimmermann, B., Schmidt, M., & von Baehr, V. (2020). ULTRASound sonography to detect focal osteoporotic jawbone marrow defects clinical comparative

study with corresponding hounsfield units and RANTES/CCL5 expression. *Clinical, Cosmetic and Investigational Dentistry*, **12**, 205– 216.

**46. Jain P, Jain M, Gaikwad RN, Doshi JR, Fulzele P. Role of inflammation and inflammatory biomarkers in dental implant procedures: A comprehensive review. J Datta Meghe Inst Med Sci Univ 2020;15:715-8**

19. Townsend M, McKenzie A. Unravelling the net? Cytokines and diseases. *Journal of Cell Science*. The Company of Biologists Ltd 2000;113:3549-50. Available from: <https://jcs.biologists.org/content/joces/113/20/3549.2.full.pdf>. [Last accessed on 2020 Aug 18].

20. Lechner J, von Baehr V. RANTES and fibroblast growth factor 2 in jawbone cavitations: Triggers for systemic disease? *Int J Gen Med* 2013;6:277-90.

21. Lechner J, von Baehr V. Hyperactivated signaling pathways of chemokine RANTES/CCL5 in osteopathies of jawbone in breast cancer patients-case report and research. *Breast Cancer (Auckl)* 2014;8:89-96.

22. Olmedo D, Fernández MM, Guglielmotti MB, Cabrini RL. Macrophages related to dental implant failure. *Implant Dent* 2003;12:75-80.

**47. Qing Zhao et al. Human Periodontal Ligament Stem Cells Transplanted with Nanohydroxyapatite/Chitosan/Gelatin 3D Porous Scaffolds Promote Jaw Bone Regeneration in Swine. STEM CELLS AND DEVELOPMENT Volume 30, Number 10, 2021 Mary Ann Liebert, Inc. DOI: 10.1089/scd.2020.0204.**

65. Maruyama Z, CA Yoshida, T Furuichi, N Amizuka, M Ito, R Fukuyama, T Miyazaki, H Kitaura, K Nakamura, et al. (2007). Runx2 determines bone maturity and turnover rate in postnatal bone development and is involved in bone loss in estrogen deficiency. *Dev Dyn* 236:1876– 1890.

66. Lechner J, T Schulz and V von Baehr. (2019). Immunohistological staining of unknown chemokine RANTES/CCL5 expression in jawbone marrow defectsosteoimmunology and disruption of bone remodeling in clinical case studies targeting on predictive preventive personalized medicine. *EPMA J* 10:351–364.

67. Tosa I, D Yamada, M Yasumatsu, E Hinoi, M Ono, T Oohashi, T Kuboki and T Takarada. (2019). Postnatal Runx2 deletion leads to low bone mass and adipocyte accumulation in mice bone tissues. *Biochem Biophys Res Commun* 516:1229–1233.



**48. Patil, S.; Testarelli, L. Assessment of Growth Factors, Cytokines, and Cellular Markers in Saliva of Patients with Trigeminal Neuralgia. *Molecules* 2021, 26, 2964.**

<https://doi.org/10.3390/>

20. Cruccu, G.; Finnerup, N.B.; Jensen, T.S.; Scholz, J.; Sindou, M.; Svensson, P.; Treede, R.-D.; Zakrzewska, J.M.; Nurmikko, T. Trigeminal neuralgia. *Neurology* 2016, 87, 220–228. [CrossRef]

21. Lechner, J.; von Baehr, V. Peripheral Neuropathic Facial/Trigeminal Pain and RANTES/CCL5 in Jawbone Cavitation. *Evid.-Based Complement. Altern. Med.* 2015, 2015, 1–9. [CrossRef]

- Yin, Y.; Guo, R.; Shao, Y.; Ge, M.; Miao, C.; Cao, L.; Yang, Y.; Hu, L. Pretreatment with resveratrol ameliorate trigeminal neuralgia by suppressing matrix metalloproteinase-9/2 in trigeminal ganglion. *Int. Immunopharmacol.* 2019, 72, 339–347. [CrossRef]

**49. Taichi Ishikawa et al. Titanium nanoparticles potentially affect gingival tissue through IL-13 $\alpha$ 2 receptor expression. <https://doi.org/10.2334/josnusd.21-0130>**

19. Olmedo DG, Nalli G, Verdú S, Paparella ML, Cabrini RL (2013) Exfoliative cytology and titanium dental implants: a pilot study. *J Periodontol* 84, 78-83.

20. Lechner J, Numbissi S, von Baehr V (2018) Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health? *EPMA J* 9, 331-343.

21. Goto Y, Ibi M, Sato H, Tanaka J, Yasuhara R, Aota K et al. (2020) PLAG1 enhances the stemness profiles of acinar cells in normal human salivary glands in a cell type-specific manner. *J Oral Biosci* 62, 99-106.

**50. Yan Li et al. Salicylic acid-based nanomedicine with self-immunomodulatory activity facilitates microRNA therapy for metabolic skeletal disorders, *Acta Biomaterialia*, 2021, ISSN 1742-7061. <https://doi.org/10.1016/j.actbio.2021.05.024>.**

**51. Janes, A et al. Article Negligible Effect of Estrogen Deficiency on Development of Skeletal Changes Induced by Type 1 Diabetes in Experimental Rat Models. *Mediators of Inflammation* Volume 2020, Article ID 2793804, 21 pages <https://doi.org/10.1155/2020/2793804>**

[59] S. Yano, R. Mentaverri, D. Kanuparthi et al., “Functional expression of  $\beta$ -chemokine receptors in osteoblasts: role of regulated upon activation, normal T cell expressed and secreted (RANTES) in osteoblasts and regulation of its secretion by osteoblasts and osteoclasts,” *Endocrinology*, vol. 146, no. 5, pp. 2324–2335, 2005.

[60] J. Lechner, T. Rudi, and V. von Baehr, “Osteoimmunology of tumor necrosis factor- $\alpha$ , IL-6, and RANTES/CCL5: a review of known and poorly understood inflammatory patterns in

osteonecrosis,"*Clinical, Cosmetic and Investigational Dentistry*, vol. 10, pp. 251–262, 2018.20 *Mediators of Inflammation* Page 21

[61] O. M. Koper-Lenkiewicz, J. Kamińska, A. Lisowska, A. Milewska, T. Hirnle, and V. Dymicka-Piekarska, "Factors associated with RANTES concentration in cardiovascular disease patients," *BioMed Research International*, vol. 2019, Article ID 3026453, 11 pages, 2019.

- **52. Jacques C, Floris I, Lejeune B. Ultra-Low Dose Cytokines in Rheumatoid Arthritis, Three Birds with One Stone as the Rationale of the 2LARTH® Micro-Immunotherapy Treatment. June 2021; International Journal of Molecular Sciences 22(13):6717. DOI: [10.3390/ijms22136717](https://doi.org/10.3390/ijms22136717)**

85. Thomas, G.; Cluzel, H.; Lafon, J.; Bruhwylter, J.; Lejeune, B. Efficacy of 2LPAPI®, a micro-immunotherapy drug, in patients with high-risk papillomavirus genital infection. *Adv. Infect. Dis.* 2016, 06, 7–14. [CrossRef]

86. Floris, I.; Lechner, J.; Lejeune, B. Follow-up of patients with systemic immunological diseases undergoing fatty-degenerative osteolysis of the jawbone surgery and treated with RANTES 27CH. *J. Biol. Regul. Homeost. Agents* 2018, 32, 37–45. Available online: <https://www.biolifesas.org/biolife/2018/10/03/follow-up-of-patients-with-systemic-immunological-diseases-undergoing-fatty-degenerative-osteolysis-of-the-jawbone-surgery-and-treated-with-rantes-27ch/> (accessed on 3 March 2021).

87. Martin-Martin, L.; Giovannangeli, F.; Bizzi, E.; Massafra, U.; Ballanti, E.; Cassol, M.; Migliore, A. An open randomized active-controlled clinical trial with low-dose SKA cytokines versus DMARDs evaluating low disease activity maintenance in patients with rheumatoid arthritis. *Drug Des. Dev. Ther.* 2017, 11, 985–994. [CrossRef]

- **52. Jacques C, Floris I, Lejeune B. Ultra-Low Dose Cytokines in Rheumatoid Arthritis, Three Birds with One Stone as the Rationale of the 2LARTH® Micro-Immunotherapy Treatment. June 2021; International Journal of Molecular Sciences 22(13):6717. DOI: [10.3390/ijms22136717](https://doi.org/10.3390/ijms22136717)**

85. Thomas, G.; Cluzel, H.; Lafon, J.; Bruhwylter, J.; Lejeune, B. Efficacy of 2LPAPI®, a micro-immunotherapy drug, in patients with high-risk papillomavirus genital infection. *Adv. Infect. Dis.* 2016, 06, 7–14. [CrossRef]

86. Floris, I.; Lechner, J.; Lejeune, B. Follow-up of patients with systemic immunological diseases undergoing fatty-degenerative osteolysis of the jawbone surgery and treated with RANTES 27CH. *J. Biol. Regul. Homeost. Agents* 2018, 32, 37–45. Available online: <https://www.biolifesas.org/biolife/2018/10/03/follow-up-of-patients-with-systemic-immunological-diseases-undergoing-fatty-degenerative-osteolysis-of-the-jawbone-surgery-and-treated-with-rantes-27ch/> (accessed on 3 March 2021).

87. Martin-Martin, L.; Giovannangeli, F.; Bizzi, E.; Massafra, U.; Ballanti, E.; Cassol, M.; Migliore, A. An open randomized active-controlled clinical trial with low-dose SKA cytokines versus DMARDs evaluating low disease activity maintenance in patients with rheumatoid arthritis. *Drug Des. Dev. Ther.* 2017, 11, 985–994. [CrossRef]

**53. Solis-Castro OO, Wong N and Boissonade FM (2021) Chemokines and Pain in the Trigeminal System. *Front. Pain Res.* 2:689314. doi: [10.3389/fpain.2021.689314](https://doi.org/10.3389/fpain.2021.689314)**

45. Duarte H, Teixeira AL, Rocha NP, Domingues RB. Increased interictal serum levels of CXCL8/IL-8 and CCL3/MIP-1 $\alpha$  in migraine. *Neurol Sci.* (2015) 36:203–8. doi: 10.1007/s10072-014-1931-1
46. Lechner J, Schmidt M, von Baehr V, Schick F. Undetected jawbone marrow defects as inflammatory and degenerative signaling pathways: chemokine RANTES/CCL5 as a possible link between the jawbone and systemic interactions? *J Inflamm Res.* (2021) 14:1603–12. doi: 10.2147/JIR.S307635
47. Lechner J, von Baehr V. Peripheral neuropathic facial/trigeminal pain and RANTES/CCL5 in jawbone cavitation. *Evid Based Complement Alternat Med.* (2015) 2015:582520. doi: 10.1155/2015/582520
48. Fidan I, Yüksel S, Ýmir T, Irkeç C, Aksakal FN. The importance of cytokines, chemokines and nitric oxide in pathophysiology of migraine. *J Neuroimmunol.* (2006) 171:184–8. doi: 10.1016/j.jneuroim.2005.10.005

**54. Dondossola, E., Friedl, P. Host responses to implants revealed by intravital microscopy. *Nat Rev Mater* (2021). <https://doi.org/10.1038/s41578-021-00369-x>**

100. Perino, G. et al. Diagnostic guidelines for the histological particle algorithm in the periprosthetic neo-synovial tissue. *BMC Clin. Pathol.* **18**, 7 (2018).

101. Lechner, J., Noubissi, S. & von Baehr, V. Titanium implants and silent inflammation in jawbone — a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health? *EPMA J.* **9**, 331–343 (2018).

102. Khosravi, N., Maeda, A., DaCosta, R. S. & Davies, J. E. Nanosurfaces modulate the mechanism of peri-implant endosseous healing by regulating neovascular morphogenesis. *Commun. Biol.* **1**, 72 (2018).

---

**55. M. Prestat, D. Thierry. Corrosion of titanium under simulated inflammation conditions: clinical context and in vitro investigations, *Acta Biomaterialia*, 2021, ISSN 1742-7061. <https://doi.org/10.1016/j.actbio.2021.10.002>**

---

[29] J.L. Gilbert, S. Mali, R.M. Urban, C.D. Silverton, J.J. Jacobs. In vivo oxide-induced stress corrosion cracking of Ti-6Al-4V in a neck-stem modular taper: Emergent behavior in a new mechanism of in vivo corrosion. *J. Biomed. Mater. Res. - Part B Appl. Biomater.*, 100 B (2012), pp. 584-594, [10.1002/jbm.b.31943](https://doi.org/10.1002/jbm.b.31943) [View PDF](#) [CrossRefView Record in ScopusGoogle Scholar](#)

[30] J. Lechner, S. Noubissi, V. von Baehr. Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health? EPMA J, 9 (2018), pp. 331-343, [10.1007/s13167-018-0138-6](https://doi.org/10.1007/s13167-018-0138-6)  
\_View PDF

[CrossRefView Record in ScopusGoogle Scholar](#)

[31] . Bressan, L. Ferroni, C. Gardin, G. Bellin, L. Sbricoli, S. Sivoletta, G. Brunello, D. Schwartz-Arad, E. Mijiritsky, M. Penarrocha, A. Piattelli, B. Zavan. Metal nanoparticles released from dental implant surfaces: Potential contribution to chronic inflammation and peri-implant bone loss. Materials (Basel), 12 (2019), [10.3390/ma12122036](https://doi.org/10.3390/ma12122036) [Google Scholar](#)

**56. Bollen C | Volume 1; Issue 1 (2020) | Mapsci-JDR-1(1)-005 | Case Report Citation: Bollen C, Dargel I, Almasri M. Replacement of 2 Incisors by Zirconia Implants: An Extended Case-Report. J Dent Rep. 2020;1(1):1-8.**

---

9. Choukroun J, et al., Two neglected biologic risk factors in bone grafting and implantology: high lowdensity lipoprotein cholesterol and low serum vitamin D. J Oral Implantol. 2014;40(1):110-4.

10. Lechner J, Rudi T, von Baehr V. Osteoimmunology of tumor necrosis factor-alpha, IL-6, and RANTES/CCL5: a review of known and poorly understood inflammatory patterns in osteonecrosis. Clin Cosmet Investig Dent. 2018;10:251.

11. Ammoun R, et al., Influence of tooth preparation design and scan angulations on the accuracy of two intraoral digital scanners: An in vitro study based on 3-dimensional comparisons. J Prosthodont. 2020;29(3):201-6.

.

- 
- **57. Eirini Zampara, Marco Bergamini, Huzefa S Talib, Thomas Wiedemann. Is Aseptic Bone Necrosis a Cause For Early Implant Failure in Patients with Metal Allergies? - A case report and review of the literature. THE JOURNAL OF ORAL CERAMIC IMPLANTOLOGY — Vol. 12-No.1; 39-38**

36. Fretwurst T, Buzanich G, Nahles S, Woelber JP, Riesemeier H, Nelson K. Metal elements in tissue with dental peri- implantitis: A pilot study. Clin Oral Implants Res 2016;27:1178–1186.

37. Lechner J, Noubissi S, von Baehr V. Titanium implants and silent inflammation in jawbone—A critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health? EPMA J 2018;9(3):331–343.

38. Hallab N. Metal sensitivity in patients with orthopedic implants. J Clin Rheumatol 2001;7(4):215–218.

- **58. Nur A. Ali, Dika P. Destiani, Riezki Amalia. The Roles of TNFRSF11B Genes as a Trigger for Secondary Osteoporosis in Rheumatoid Arthritis Cases. September 2021. Indonesian Journal of Clinical Pharmacy 10(3):234-248; DOI: 10.15416/ijcp.2021.10.3.234.**

**59. Subramanian M, et al. Putative role of prosthetic dental implants in the development of cardiac sarcoidosis: A case-control study. SARCOIDOSIS, VASCULITIS AND DIFFUSE LUNG DISEASES 2021; 38 (3); e2021023 DOI: 10.36141/svdld.v38i3.110922**

23. Pascon EA, Spangberg LS. In vitro cytotoxicity of root canal filling materials: 1. Gutta-percha. Journal of endodontics. 1990;16:429-433.

24. Lechner J BV. Impact of Endodontically Treated Teeth on Systemic Diseases. Dentistry. 2018;8.

25. Fireman E, Kramer MR, Priel I, Lerman Y. Chronic beryllium disease among dental technicians in Israel. Sarcoidosis, vasculitis, and diffuse lung diseases : official journal of WASOG. 2006;23:215-221

**60. Khudan R, et al. Hydrogen sulfide metabolism and its role in the development of periodontal diseases Rom J Diabetes Nutr Metab Dis. 2021; volume 28, issue 3. DOI: [10.46389/rjd-2021-1047](https://doi.org/10.46389/rjd-2021-1047)**

30. Lechner, J., von Baehr, V. (2015). Stimulation of proinflammatory cytokines by volatile sulfur compounds in endodontically treated teeth. Int J Gen Med. 8:109–118.

31. Calenic, B., Yaegaki, K., Kozhuharova, A., Imai T. (2010). Oral malodorous compound causes oxidative stress and p53-mediated programmed cell death in keratinocyte stem cells. J Periodontol. 81(9):1317–1323.

**61. Radam AA, Zuhair R. Biochemical Aspects in Sera of Iraqi Patients with Trigeminal Neuralgia. October 2021, NeuroQuantology 19(9):14-19.DOI: 10.14704/nq.2021.19.9.NQ21132**

.. Definitely, trigeminal neuralgia (TN) is an exclusive facial pain syndrome characterized by paroxysmal, shock-like pain attacks located exactly in the somatosensory distribution of the trigeminal nerve [Montano et al., 2015]. In this regard, pain is the definite feature of inflammation concerning TN [Lechner et al., 2015]. On the other hand glycoconjugates are biosynthesized through a biochemical process called glycosylation and can differ in their glycan sequences, connections and length [Reily et al., 2019]. ...

**62. Karl-Schoeller F, et al. A translational study: Involvement of miR-21-5p in development and maintenance of neuropathic pain via immune-related targets CCL5 and YWHAE. November 2021. Experimental Neurology 347(10):113915. DOI: [10.1016/j.expneurol.2021.113915](https://doi.org/10.1016/j.expneurol.2021.113915)**

Lantero, A., Tramullas, M., Diaz, A., Hurle, M.A., 2012. Transforming growth factor-beta in normal nociceptive processing and pathological pain models. *Mol. Neurobiol.* 45, 76–86.

Lechner, J., von Baehr, V., 2015. Peripheral neuropathic facial/trigeminal pain and RANTES/CCL5 in jawbone cavitation. *Evid. Based Complement. Alternat. Med.* 2015, 582520.

Leinders, M., Uceyler, N., Thomann, A., Sommer, C., 2017. Aberrant microRNA expression in patients with painful peripheral neuropathies. *J. Neurol. Sci.* 380, 242–249. Liou, J.T.,

• **63. Raj Kumar Manchanda RK, et al. The Clinical and Biological Effects of Homeopathically Prepared Signaling Molecules: A Scoping Review. November 2021; DOI: [10.1055/s-0041-1732305](https://doi.org/10.1055/s-0041-1732305)**

•

- **37** Floris I, García-González V, Palomares B, Appel K, Lejeune B. [The micro-immunotherapy medicine 2LARTH® reduces inflammation and symptoms of rheumatoid arthritis \*in vivo\*](#). *Int J Rheumatol* 2020; 2020: 1594573
- **38** Floris I, Lechner J, Lejeune B. [Follow-up of patients with systemic immunological diseases undergoing fatty-degenerative osteolysis of the jawbone surgery and treated with RANTES 27CH](#). *J Biol Regul Homeost Agents* 2018; 32: 37-45
- **39** Jenaer M, Henry MF, Garcia A, Marichal B. [Evaluation of 2LHERP in preventing recurrences of genital herpes](#). *Institut International 3IDI*. *Br Homeopath J* 2000; 89: 174-177

**64. Furkan Ayaz, Didem Demir & Nimet Bölgen (2021) Differential anti-inflammatory properties of chitosan-based cryogel scaffolds depending on chitosan/gelatin ratio, Artificial Cells, Nanomedicine, and Biotechnology, 49:1, 682-690, DOI: [10.1080/21691401.2021.2012184](https://doi.org/10.1080/21691401.2021.2012184)**

13. Kzhyskowska J, Gudima A, Riabov V, et al. Macrophage responses to implants: prospects for personalized medicine. *J Leukoc Biol.* 2015;98(6):953–962. [[Crossref](#)], [[PubMed](#)], [[Google Scholar](#)]

14. Lechner J, Numbissi S, von Baehr V. Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health? *EPMA J.* 2018;9(3):331–343. [[Crossref](#)], [[PubMed](#)], [[Google Scholar](#)]

15. Wang X, Xu X, Huang H, et al. Interleukin-6 first plays pro- then anti-inflammatory role in early versus late acute renal allograft rejection. *Ann Clin Lab Sci.* 2013;43(4):389–394. [[PubMed](#)], [[Google Scholar](#)]

**65. Mamun-Or-Rashid ANM, Lucy TT, Yagi M, Yonei Y. Inhibitory Effects of Astaxanthin on CML-HSA-Induced Inflammatory and RANKL-Induced Osteoclastogenic Gene Expression in RAW 264.7 Cells. *Biomedicines*. 2022; 10(1):54. <https://doi.org/10.3390/biomedicines10010054>**

12. Kany, S.; Vollrath, J.T.; Relja, B. Cytokines in inflammatory disease. *Int. J. Mol. Sci.* **2019**, *20*, 6008. [[Google Scholar](#)] [[CrossRef](#)]

13. Lechner, J.; Rudi, T.; Von Baehr, V. Osteoimmunology of tumor necrosis factor-alpha, IL-6, and RANTES/CCL5: A review of known and poorly understood inflammatory patterns in osteonecrosis. *Clin. Cosmet. Investig. Dent.* **2018**, *10*, 251–262. [[Google Scholar](#)] [[CrossRef](#)] [[PubMed](#)]

14. Yokota, K.; Sato, K.; Miyazaki, T.; Aizaki, Y.; Tanaka, S.; Sekikawa, M.; Kozu, N.; Kadono, Y.; Oda, H.; Mimura, T. Characterization and function of tumor necrosis factor and Interleukin-6-induced osteoclasts in rheumatoid arthritis. *Arthritis Rheumatol.* **2021**, *73*, 1145–1154. [[Google Scholar](#)] [[CrossRef](#)]

**66. Dong-Dong Wu, Ebenezer Erasto Ngowi, Yuan-Kun Zhai, Yi-Zhen Wang, Nazeer Hussain Khan, Ahmad Fadhil Kombo, Saadullah Khattak, Tao Li, Xin-Ying Ji, "Role of Hydrogen Sulfide in Oral Disease", *Oxidative Medicine and Cellular Longevity*, vol. 2022, Article ID 1886277, 14 pages, 2022. <https://doi.org/10.1155/2022/1886277>**

[140] Lechner and V. von Baehr, "Stimulation of proinflammatory cytokines by volatile sulfur compounds in endodontically treated teeth," *International Journal of General Medicine*, vol. 8, pp. 109–118, 2015.

**67. Cilia, C.; Friggieri, D.; Vassallo, J.; Xuereb-Anastasi, A.; Formosa, M.M. Whole Genome Sequencing Unravels New Genetic Determinants of Early-Onset Familial Osteoporosis and Low BMD in Malta. *Genes* 2022, *13*, 204. <https://doi.org/10.3390/genes13020204>**

106. Holbrook, J.; Lara-Reyna, S.; Jarosz-Griffiths, H.; McDermott, M. Tumour necrosis factor signalling in health and disease. *F1000Research* **2019**, *8*, 111. [[Google Scholar](#)] [[CrossRef](#)] [[PubMed](#)]

107. Lechner, J.; Rudi, T.; von Baehr, V. Osteoimmunology of tumor necrosis factor-alpha, IL-6, and RANTES/CCL5: A review of known and poorly understood inflammatory patterns in osteonecrosis. *Clin. Cosmet. Investig. Dent.* **2018**, *10*, 251–262. [[Google Scholar](#)] [[CrossRef](#)] [[PubMed](#)]

108. Greenblatt, M.B.; Shim, J.H. Osteoimmunology: A brief introduction. *Immune Netw.* **2013**, *13*, 111–115. [[Google Scholar](#)] [[CrossRef](#)] [[PubMed](#)]

68. Varkha Rattu, Jay Parmar, Devan Raindi. Vitamin D and periodontitis: shedding the light. December 2021, *Dental Update* 48(11):946-55. doi.org/10.12968/denu.2021.48.11.946

11. Bjelakovic G, Gluud LL, Nikolova D et al. Vitamin D supplementation for prevention of mortality in adults. *Cochrane Database Syst Rev* 2014; (1):

CD007470. <https://doi.org/10.1002/14651858.CD007470.pub3>. [Medline](#), [Google Scholar](#)

12. Lechner J, Aschoff J, Rudi T. The vitamin D receptor and the etiology of RANTES/CCL-expressive fatty-degenerative osteolysis of the jawbone: an interface between osteoimmunology and bone metabolism. *Int J Gen Med* 2018; 11: 155–166. <https://doi.org/10.2147/IJGM.S152873>. [Medline](#), [Google Scholar](#)

13. Isola G, Alibrandi A, Rapisarda E et al. Association of vitamin D in patients with periodontitis: a cross-sectional study. *J Periodontal Res* 2020; 55: 602–

612. <https://doi.org/10.1111/jre.12746>. [Medline](#), [Google Scholar](#)

69. Del Pinto, R, Monaco, A, Ortu, E, et al. Access to dental care and blood pressure profiles in adults with high socioeconomic status. *J Periodontol*. 2021; 00 1- 12.

<https://doi.org/10.1002/JPER.21-0439>

35 Meija G, Jamieson LM, Ha D, Spencer AJ. Greater inequalities in dental treatment than in disease experience. *J Dent Res*. 2014;93(10):966-971.

[CrossrefCASPubMedWeb of Science](#) [Google Scholar](#)

36 Lechner J, Noumbissi S, von Baehr V. Titanium implants and silent inflammation in jawbone—a critical interplay of dissolved titanium particles and cytokines TNF- $\alpha$  and RANTES/CCL5 on overall health? *EPMA J*. 2018;9(3):331-343.

[CrossrefPubMedWeb of Science](#) [Google Scholar](#)

37 Konttinen YT, Lappalainen R, Laine P, Kitti U, Santavirta S, Teronen O. Immunohistochemical evaluation of inflammatory mediators in failing implants. *Int J Periodontics Restorative Dent*. 2006;26(2):135-141.

[PubMedWeb of Science](#) [Google Scholar](#)



