

## **Leonardo Antonio Sechi**

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### Education:

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| 1989 | Università degli studi di Sassari, with honors.  |
| 1991 | Postdoctoral Fellowship Department of Microbiology and Immunology, Temple University, Philadelphia. U.S.A.             |
| 1993 | Specialization in Microbiology and Virology, Istituto di Microbiologia e Virologia, Università degli studi di Sassari. |

### Academic Curriculum:

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| 1994 | Assistant Professor, Istituto di Microbiologia e Virologia, Università degli studi di Sassari. |
| 2001 | Associate Professor of Microbiology, Faculty of Medicine, University of Sassari, Italy         |
| 2007 | Full Professor of Microbiology SSD MED/07, Faculty of Medicine, University of Sassari, Italy   |

### **Academic Duties**

2013-present. Director of the PhD School in Life Sciences and Biotechnologies, University of Sassari. <http://phdlsb.uniss.it>

2012-present. Member Albo degli Esperti per il Ministero dell'Istruzione, Università e Ricerca (MIUR) per il settore Ricerca Scientifica e Sviluppo (DECRETO 2 febbraio 2012. Costituzione dell'albo degli esperti di cui all'art. 7, comma 1, del decreto legislativo 27 luglio 1999, n. 297. (Decreto n. 30/Ric). (12A05157) (GU n. 105 del 7-5-2012 )

2020-present. Rector's delegate for the Scientific Area of the University of Sassari, Italy

2018-2020 (up to 07/2021). Member of the National qualification Commission (ASN) for the evaluation of Microbiology Professorship for the Italian Universities (A3/06, SSD MED/07).

2012-2015. Member Gruppo Esperti Valutatori (GEV) 06 (Scienze Mediche) dell' Agenzia Nazionale Valutazione dell'Università e della Ricerca (ANVUR).

### **Awards**

1° classified “ Scientific Productivity Award” Università di Sassari, anno 2007.



### **Other activities**

2005. Founder of ISOGEM sas, start-up supported by Regione Autonoma della Sardegna, successivamente trasformata in ISOGEM srl. (<http://www.sardegnaicerche.it/index.php?xsl=370&s=94093&v=2&c=6026&nc=1&sc=&o=1>)

2006- Founder of International Society for Genomic and Evolutionary Microbiology ( <http://www.isogem.org/about.html>).

### Stages abroad

- Grant from the Sardinia Region to follow a biannual course within the Department of Microbiology and Immunology, School of Medicine, Temple University, Philadelphia. U.S.A.
- “Post-Doctoral Fellow” Department of Microbiology and Immunology, School of Medicine, Temple University, Philadelphia. U.S.A dal Marzo 1991 sino a Giugno 1994.
- “Visiting Scientist” Department of Microbiology and Immunology, School of Medicine, Temple University, Philadelphia. U.S.A da Gennaio a Marzo 1995.
- 1999 “Visiting Scientist” Centro de investigaciones del Ozono, Centro National de Investigaciones Cientificas. Ciudad de l’Habana, Cuba. Antibacterial activity of Ozone and Ozone derivatives.

- 2001 Visiting Scientist nel Dipartimento di Microbiologia delle Università di Tripoli e di Sabratha (Libya).
- 2005 visiting Scientist nel “Centre Muraz” di Bobo Dioulasso (BurkinaFaso) per allestire un laboratorio di ricerca per l’isolamento e la rilevazione di Micobatteri.
- 2006- present, Visiting scientist, University of Athens
- 2007, University of Hyderabad , India
- 2012, University of Cape Town, South Africa
- 2016, Visiting Scientist, Veterinarian National Institute, Bangkok, Thailand
- 2015- present, Visiting Professor Teheran University Medical School, Iran

Member of Scientific Societies:

- Member American Society for Microbiology (ASM,USA)
- Member European Society for Mycobacteriology (ESM)
- Member Asia-African Society for Mycobacteriology (AASM)
- Member Società Italiana di Microbiologia (SIM, Italia)
- Presidente della International Society of Genomic and Evolutionary Microbiology (ISOGEM) <http://www.isogem.org> dal 2005
- Member of the Advisory Board of the Asian African Society of Mycobacteriology. <http://theaasm.org/?part=menu&inc=menu&id=41>

**Editor or Reviewer:**

- Chief Editor of “Gut Pathogens” BMC series <http://www.gutpathogens.com/>
- Editor of PloS ONE, <http://www.plosone.org/static/edboard.action/>

- Editor of “International Journal of Mycobacteriology”  
[http://www.elsevier.com/wps/find/journaleditorialboard.cws\\_home/727141/editorialboard](http://www.elsevier.com/wps/find/journaleditorialboard.cws_home/727141/editorialboard)
- Section Editor of Pathogen Journal , for 'Immunological Responses and Immune Defense Mechanisms'.  
[https://www.mdpi.com/journal/pathogens/sectioneditors/Immunological\\_Responses](https://www.mdpi.com/journal/pathogens/sectioneditors/Immunological_Responses)
- Editor of *World Journal of Diabetes (WJD)*  
<http://www.wjgnet.com/1948-9358/index.htm>.
- Editor of “Journal of Gastroenterology and Hepatology Research” (print ISSN 2224-3992, online ISSN 2224-6509)
- Editor of “Annal of Clinical Microbiology and Antimicrobials” dal 2002
- Editor of “The Open Veterinary Journal” dal 2007
- Editor of “International Health Sciences Journal” 2007
- Member of International advisory board of Turkish infectious diseases journal : FLORA (ISSN 1300-932X)
- Reviewer and grant evaluator for the “Medical Research Council”, United Kingdom nad Broad Medical Program, USA.
- Referee for research project evaluations of Italian Multiple Sclerosis Foundation (FISM) in 2011, 2012 Calls.
- Reviewer for the following journals: *Molecular and Cellular Biology*, *PloS One journal*, *CHEST*, *BMC Microbiology*, *Journal of Clinical Microbiology*, *Journal of Applied Microbiology*, *Inflammatory Bowell*

*Disease Journal, Dig Live Diseas., Infection Genetics and Evolution, Chemotherapy, FEMS Microbiology letters, Letters in Applied Microbiology, International Journal of Experimental and Clinical Chemotherapy, Pharmacology Research, Indian Journal of Medical Microbiology, New Microbiologica, Journal Veterinarni Medicina, Future Microbiology Journal, Reviews in Infection, Archives of clinical microbiology.*

- Membro del Board of Examiners, Bharathiar University, Coimbatore, India.

PI of International projects:

- PI of the project “Human Endogenous Retroviruses in neurological diseases (Multiple Sclerosis, Parkinson, Autism Spectrum Disease) and Type 1 Diabetes”

€823.000, Legge regionale 12 Regione autonoma della Sardegna 26 Novembre 2022.

- PI of the RTDA project within spoke Aerospace eINS PNRR project 2022-2025, University of Sassari total amount for the spoke: €2.600.000
- Epitopes4cov: identificazione di epitopi specifici di Coronavirus leganti ACE2 in sieri di pazienti con diverse malattie autoimmuni ed oncologiche. Sardegna Ricerche 2020-2021. € 60.0000.

- PI. IRKALS, role of HERV-K in Amyotrophic Lateral Disease. 2018. AriSLA foundation.
- P.I. italian unit, of the project "The role of alpha-synuclein as an antiviral peptide in Parkinson's disease" financed by Parkinson's UK, reference SMA-17B-00, (2017-2018) Principal Investigator Prof Jurgen Haas, University of Edinburgh.
- PI of unit 2 within the FP7 EU project: Sustaining research momentum over the coming decades: mentoring the next generation of researchers for tuberculosis, acronym "TB-SUSGENT" (cordinator prof K. Dedha, South Africa), 2008-2011. € 147.000.
- PI of unit 3 within the FP6 EU project: Multi-parametric detection of bio-molecules coniugated with nanoparticles in the Tuberculosis, acronym "Nanomyc" (coordinator John Ikonomopoulos), 2006-2008 number 036812. €300.000
- P.I. of unit 36 within the CA:VENoMYC (Coordinator Lucas Domingues, Spain) . FP6 N° SSPE-CT-2004-501903.€120.000
- P.I. of unit 4 of the project: Improvement of prevention, diagnosis and treatment of Sarcoidosis and Crohn's Disease. Acronym: SACHRON (Coordinator John Ikonomanopolous, Greece) FPV 1998-2002. £ 220.000.000

- Patents
- European Patent n. 10012370.2-2404. Title: Mycobacterial protein detection (5/4/2011)
- Patente de invencao national n°105971 (2/5/2012), refa DMP/DGD/01/2012/346596, Instituto National de propriedade industrial (INPI)
- Books
- Coad Thomas Dow and Leonardo A. Sechi.
- Environmental Triggers of Type 1 Diabetes Mellitus – Mycobacterium Avium Subspecies Paratuberculosis in Type 1 Diabetes - Pathogenesis, Genetics and Immunotherapy.
- Edited by: David Wagner. ISBN 978-953-307-362-0, Hard cover, 660 pages  
 Publisher: InTech. Publication date: November 2011

Please find full text of my publications at:

[https://www.researchgate.net/profile/Leonardo\\_Sechi2](https://www.researchgate.net/profile/Leonardo_Sechi2)

Publications in peer reviewed journals since 2012

Cossu D, Yokoyama K, Sakanishi T, Sechi LA, Hattori N. Bacillus Calmette-Guérin Tokyo-172 vaccine provides age-related neuroprotection in actively induced and spontaneous experimental autoimmune encephalomyelitis models. Clin Exp Immunol. 2023 Feb 6:uxad015. doi: 10.1093/cei/uxad015.

Ashraf H, Cossu D, Ruberto S, Noli M, Jasemi S, Simula ER, Sechi LA. Latent Potential of Multifunctional Selenium Nanoparticles in Neurological Diseases and Altered Gut Microbiota. *Materials (Basel)*. 2023 Jan 11;16(2):699. doi: 10.3390/ma16020699.

Rezasoltani S, Aghdaei HA, Jasemi S, Gazouli M, Dovrolis N, Sadeghi A, Schlüter H, Zali MR, Sechi LA, Feizabadi MM. Oral Microbiota as Novel Biomarkers for Colorectal Cancer Screening. *Cancers (Basel)*. 2022 Dec 28;15(1):192. doi: 10.3390/cancers15010192.

Jasemi S, Paulus K, Noli M, Simula ER, Ruberto S, Sechi LA. Antibodies against HSV-1 and Curlin Show the Highest Correlation in Parkinson's Disease Patients in Comparison to Healthy Controls. *Int J Mol Sci*. 2022 Nov 26;23(23):14816. doi: 10.3390/ijms232314816.

Cossu D, Yokoyama K, Sato S, Noda S, Sakanishi T, Sechi LA, Hattori N. Age related immune modulation of experimental autoimmune encephalomyelitis in PINK1 knockout mice. *Front Immunol*. 2022 Nov 17;13:1036680. doi: 10.3389/fimmu.2022.1036680.

Noli M, Meloni G, Ruberto S, Jasemi S, Simula ER, Cossu D, Bo M, Palermo M, Sechi LA. HERV-K Envelope Protein Induces Long-Lasting Production of Autoantibodies in T1DM Patients at Onset in Comparison to ZNT8 Autoantibodies. *Pathogens*. 2022 Oct 15;11(10):1188. doi: 10.3390/pathogens11101188.

Ramli I, Posadino AM, Zerizer S, Spissu Y, Barberis A, Djeghim H, Azara E, Bensouici C, Kabouche Z, Rebbas K, D'hallewin G, Sechi LA, Pintus G. Low concentrations of *Ambrosia maritima* L. phenolic extract protect endothelial cells from oxidative cell death induced by H<sub>2</sub>O<sub>2</sub> and sera from Crohn's disease patients. *J Ethnopharmacol*. 2023 Jan 10;300:115722. doi: 10.1016/j.jep.2022.115722.

Ruberto S, Santovito A, Simula ER, Noli M, Manca MA, Sechi LA. Bisphenols induce human genomic damage and modulate HERVs/env expression. *Environ Mol Mutagen*. 2022 Jul;63(6):275-285. doi: 10.1002/em.22499.

Garcia-Montojo M, Simula ER, Fathi S, McMahan C, Ghosal A, Berry JD, Cudkowicz M, Elkahlon A, Johnson K, Norato G, Jensen P, James T, Sechi LA, Nath A. Antibody Response to HML-2 May Be Protective in Amyotrophic Lateral Sclerosis. *Ann Neurol*. 2022 Nov;92(5):782-792. doi: 10.1002/ana.26466. Epub 2022 Aug 24.

Hosseiniporgham S, Sechi LA. A Review on Mycobacteriophages: From Classification to Applications. *Pathogens*. 2022 Jul 7;11(7):777. doi: 10.3390/pathogens11070777.

Simula ER, Manca MA, Noli M, Jasemi S, Ruberto S, Uzzau S, Rubino S, Manca P, Sechi LA. Increased Presence of Antibodies against Type I Interferons and Human Endogenous Retrovirus W in Intensive Care Unit COVID-19 Patients. *Microbiol Spectr*. 2022 Aug 31;10(4):e0128022. doi: 10.1128/spectrum.01280-22.

Ramli I, Zerizer S, Gali L, Sakhri FZ, Kabouche Z, Usai D, Sechi LA. In vitro and in vivo bioactivities of *Ambrosia maritima* and *Bituminaria bituminosa* organic extracts from Algeria. *J Infect Dev Ctries*. 2022 Jun 30;16(6):1064-1074. doi: 10.3855/jidc.16788.

Carta A, Manca MA, Scoppola C, Simula ER, Noli M, Ruberto S, Conti M, Zarbo IR, Antonucci R, Sechi LA, Sotgiu S Antihuman Endogenous Retrovirus Immune Response and Adaptive Dysfunction in Autism. *Biomedicines*. 2022 Jun 9;10(6):1365. doi: 10.3390/biomedicines10061365.PMID: 35740387

Ozana V, Hruska K, Sechi LA. Neglected Facts on *Mycobacterium Avium* Subspecies *Paratuberculosis* and Type 1 Diabetes. *Int J Mol Sci*. 2022 Mar 26;23(7):3657. doi: 10.3390/ijms23073657.PMID: 35409018 Free PMC article.

Farsi Y, Tahvildari A, Arbabi M, Vazife F, Sechi LA, Shahidi Bonjar AH, Jamshidi P, Nasiri MJ, Mirsaiedi M. Diagnostic, Prognostic, and Therapeutic Roles of Gut Microbiota in COVID-19: A Comprehensive Systematic Review. *Front Cell Infect Microbiol*. 2022 Mar 4;12:804644. doi: 10.3389/fcimb.2022.804644

Manca MA, Solinas T, Simula ER, Noli M, Ruberto S, Madonia M, Sechi LA HERV-K and HERV-H Env Proteins Induce a Humoral Response in Prostate Cancer Patients. *Pathogens*. 2022 Jan 14;11(1):95. doi: 10.3390/pathogens11010095.

Hosseiniorgham S, Rebechesu L, Pintore P, Lollai S, Dattena M, Russo S, Ruiu A, Sechi LA. A rapid phage assay for detection of viable *Mycobacterium avium* subsp. *paratuberculosis* in milk. *Sci Rep*. 2022 Jan 10;12(1):475.

Cossu D, Ruberto S, Yokoyama K, Hattori N, Sechi LA. Efficacy of BCG vaccine in animal models of neurological disorders. *Vaccine*. 2022 Jan 24;40(3):432-436.

Simula ER, Arru G, Zarbo IR, Solla P, Sechi LA. TDP-43 and HERV-K Envelope-Specific Immunogenic Epitopes Are Recognized in ALS Patients. *Viruses*. 2021 Nov 18;13(11):2301

Hruska K, Sechi LA. Long History of Queries about Bovine Paratuberculosis as a Risk Factor for Human Health. *Pathogens*. 2021 Oct 28;10(11):1394

Jasemi S, Erre GL, Cadoni ML, Bo M, Sechi LA. Humoral Response to Microbial Biomarkers in Rheumatoid Arthritis Patients. *J Clin Med*. 2021 Nov 2;10(21):5153.

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Noli M, Meloni G, Manca P, Cossu D, Palermo M, Sechi LA. HERV-W and *Mycobacterium avium* subspecies *paratuberculosis* Are at Play in Pediatric Patients at Onset of Type 1 Diabetes. *Pathogens*. 2021 Sep 3;10(9):1135

Cossu D, Yokoyama K, Sato S, Noda S, Sechi LA, Hattori N. PARKIN modifies peripheral immune response and increases neuroinflammation in active experimental autoimmune encephalomyelitis (EAE). *J Neuroimmunol*. 2021 Oct 15;359:577694

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Cossu D, Yokoyama K, Sechi LA, Hattori N. Potential of PINK1 and PARKIN Proteins as Biomarkers for Active Multiple Sclerosis: A Japanese Cohort Study. *Front Immunol*. 2021 Aug 4;12:681386.

Jasemi S, Emaneini M, Ahmadinejad Z, Fazeli MS, Sechi LA, Sadeghpour Heravi F, Feizabadi MM. Antibiotic resistance pattern of *Bacteroides fragilis* isolated from clinical and colorectal specimens. *Ann Clin Microbiol Antimicrob*. 2021 Apr 23;20(1):27. doi: 10.1186/s12941-021-00435-w.PMID: 33892721

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Simula ER, Manca MA, Jasemi S, Uzzau S, Rubino S, Manchia P, Bitti A, Palermo M, Sechi LA. HCoV-NL63 and SARS-CoV-2 Share Recognized Epitopes by the Humoral Response in Sera of People Collected Pre- and during CoV-2 Pandemic. *Microorganisms*. 2020 Dec 14;8(12):1993. doi: 10.3390/microorganisms8121993.PMID: 33327507

Scarpa F, Sanna D, Azzena I, Mugetti D, Cerruti F, Hosseini S, Cossu P, Pinna S, Grech D, Cabana D, Pasquini V, Esposito G, Cadoni N, Atzori F, Antuofermo E, Addis P, Sechi LA, Prearo M, Peletto S, Mossa MA, Saba T, Gazale V, Casu M. Multiple Non-Species-Specific Pathogens Possibly Triggered the Mass Mortality in *Pinna nobilis*. *Life (Basel)*. 2020 Oct 13;10(10):238. doi: 10.3390/life10100238.PMID: 33066230

Bo M, Jasemi S, Uras G, Erre GL, Passiu G, Sechi LA. Role of Infections in the Pathogenesis of Rheumatoid Arthritis: Focus on Mycobacteria. *Microorganisms*. 2020 Sep 23;8(10):1459. doi:10.3390/microorganisms8101459.

Mavragani CP, Nezos A, Dovrolis N, Andreou NP, Legaki E, Sechi LA, Bamias G, Gazouli M. Type I and II Interferon Signatures Can Predict the Response to Anti-TNF Agents in Inflammatory Bowel Disease Patients: Involvement of the Microbiota. *Inflamm Bowel Dis*. 2020 Sep 18;26(10):1543-1553. doi: 10.1093/ibd/izaa216.PMID: 32812029

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Xue B, Sechi LA, Kelvin DJ. Human Endogenous Retrovirus K (HML-2) in Health and Disease. *Front Microbiol*. 2020 Jul 17;11:1690. doi: 10.3389/fmicb.2020.01690. eCollection 2020.PMID: 32765477

Jasemi S, Emaneini M, Fazeli MS, Ahmadinejad Z, Nomanpour B, Sadeghpour Heravi F, Sechi LA, Feizabadi MM. Toxigenic and non-toxigenic patterns I, II and III and biofilm-forming

ability in *Bacteroides fragilis* strains isolated from patients diagnosed with colorectal cancer. Gut Pathog. 2020 Jun 5;12:28. doi: 10.1186/s13099-020-00366-5. eCollection 2020.PMID: 32518594

Xue B, Zeng T, Jia L, Yang D, Lin SL, Sechi LA, Kelvin DJ. Identification of the distribution of human endogenous retroviruses K (HML-2) by PCR-based target enrichment sequencing. Retrovirology. 2020 May 6;17(1):10.

Bo M, Niegowska M, Frau J, Sechi G, Arru G, Cocco E, Sechi LA. IL-2 and Mycobacterial Lipoarabinomannan as Targets of Immune Responses in Multiple Sclerosis Patients. Microorganisms. 2020 Apr 1;8(4):500.

Dovrolis N, Michalopoulos G, Theodoropoulos GE, Arvanitidis K, Kolios G, Sechi LA, Eliopoulos AG, Gazouli M. The Interplay between Mucosal Microbiota Composition and Host Gene-Expression is Linked with Infliximab Response in Inflammatory Bowel Diseases. Microorganisms. 2020 Mar 20;8(3):438.

Zamani S, Taslimi R, Sarabi A, Jasemi S, Sechi LA, Feizabadi MM. Enterotoxigenic *Bacteroides fragilis*: A Possible Etiological Candidate for Bacterially-Induced Colorectal Precancerous and Cancerous Lesions. Front Cell Infect Microbiol. 2020 Jan 17;9:449.

Bo M, Erre GL, Bach H, Slavin YN, Manchia PA, Passiu G, Sechi LA. PtpA and PknG Proteins Secreted by "*Mycobacterium avium subsp. paratuberculosis*" are Recognized by Sera from Patients with Rheumatoid Arthritis: A Case-Control Study. J Inflamm Res. 2019 Dec 3;12:301-308.

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Dow CT, Sechi LA. Cows Get Crohn's Disease and They're Giving Us Diabetes. Microorganisms. 2019 Oct 17;7(10):466.

Jamshidi P, Hasanzadeh S, Tahvildari A, Farsi Y, Arbabi M, Mota JF, Sechi LA, Nasiri MJ. Is there any association between gut microbiota and type 1 diabetes? A systematic review. Gut Pathog. 2019 Oct 14;11:49.

Bo M, Arru G, Niegowska M, Erre GL, Manchia PA, Sechi LA. Association between Lipoprotein Levels and Humoral Reactivity to "*Mycobacterium avium subsp. paratuberculosis*" in Multiple Sclerosis, Type 1 Diabetes Mellitus and Rheumatoid Arthritis. Microorganisms. 2019 Oct 8;7(10):423.

Erre GL, Mundula N, Colombo E, Mangoni AA, Sechi LA, Oggiano M, Irde R, Zinellu A, Passiu G, Carru C. Diagnostic Accuracy of Anticarbamylated Protein Antibodies in Established Rheumatoid Arthritis: A Monocentric Cross-Sectional Study. ACR Open Rheumatol. 2019 Aug 8;1(7):433-439.

- Eraghi V, Derakhshandeh A, Hosseini A, Haghkhah M, Sechi LA, Motamedi Boroojeni A. Recombinant fusion protein of Heparin-Binding Hemagglutinin Adhesin and Fibronectin Attachment Protein (rHBHA-FAP) of “Mycobacterium avium subsp. Paratuberculosis” elicits a strong gamma interferon response in peripheral blood mononuclear cell culture. *Gut Pathog.* 2019 Jul 9;11:36.
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- Cossu D, Yokoyama K, Nobutaka N, Sechi LA. From Sardinia to Japan: update on the role of MAP in multiple sclerosis. *Future Microbiol.* 2019 May;14:643-646.
- Niegowska M, Wajda-Cuszlag M, Stępień-Ptak G, Trojanek J, Michałkiewicz J, Szalecki M, Sechi LA. Anti-HERV-W<sub>Env</sub> antibodies are correlated with seroreactivity against Mycobacterium avium subsp. paratuberculosis in children and youths at T1D risk. *Sci Rep.* 2019 Apr 18;9(1):6282.
- Caggiu E, Arru G, Hosseini S, Niegowska M, Sechi G, Zarbo IR, Sechi LA. Inflammation, Infectious Triggers, and Parkinson's Disease. *Front Neurol.* 2019 Feb 19;10:122. doi: 10.3389/fneur.2019.00122. eCollection 2019.
- Fhoula I, Rehaïem A, Najjari A, Usai D, Boudabous A, Sechi LA, Hadda-Imene O. Functional Probiotic Assessment and *In Vivo* Cholesterol-Lowering Efficacy of *Weissella* sp. Associated with Arid Lands Living-Hosts. *Biomed Res Int.* 2018 Nov 14;2018:1654151. doi: 10.1155/2018/1654151. eCollection 2018.
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Clin Exp Rheumatol. 2018 May-Jun;36(3):376-381. Epub 2018 Jan 15.

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