

BIOGRAPHICAL SKETCH

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NAME: Scher, Jose U., M.D. !

eRA COMMONS USER NAME (credential, e.g., agency login): !

POSITION TITLE: Assistant Professor of Medicine, New York University School of Medicine
Director Psoriatic Arthritis Center, New York University School of Medicine

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Universidad Maimonides, Buenos Aires, Argentina	M.D.	02/2000	Medicine
NYU School of Medicine, New York, NY	Residency	06/2007	Internal Medicine
NYU Hospital for Joint Diseases, New York, NY: Rheumatology Fellowship Training Program	Fellowship	06/2009	Rheumatology
NYU Skirball Institute (Littman Lab), New York, NY: Translational postdoc	Postdoctoral	12/2010	Immunology

A. Positions and Honors**Positions and Employment**

2000–2004 Clinical Immunology Residency, National Genetic Data Bank, Buenos Aires, Argentina
2001–2002 Faculty Assistant, Board Specialist Career in Dermatology, Buenos Aires, Argentina
2002–2003 Clinical Immunology Assistant Professor, UCES University School of Medicine,
2004–2007 Internal Medicine Residency, NYU School of Medicine, New York, NY
2007–2009 Rheumatology Fellowship, NYU Hospital for Joint Diseases, New York, NY
2009–2012 Instructor in Medicine and Rheumatology, NYU School of Medicine, New York, NY
2009–present Director, Microbiome Center for Rheumatology and Autoimmunity (MiCRA), NYU SoM
2009–present Senior Investigator, Seligman Center for Advanced Therapeutics; NYU-HJD Clinical Trial Unit, New York, NY
2011–present Director, Arthritis Clinic, NYU-Hospital for Joint Diseases, New York, NY
2012–present Director, Psoriatic Arthritis Center, NYU Medical Center, New York, NY
2013–present Assistant Professor of Medicine, NYU School of Medicine, New York, NY

Editorial Positions

2009–present ad hoc reviewer *Inflammation*
2009–present ad hoc reviewer *FASEB Journal*
2010–present ad hoc reviewer *Arthritis and Rheumatology*
2010–present ad hoc reviewer *Arthritis Research and Therapy*
2013–present Section editor *Current Opinion Rheumatology*
2016–present ad hoc reviewer *Microbiome*
2016–present ad hoc reviewer *Immunity*
2018–present Editorial Board *Autoimmunity Reviews*

Board Certifications

2002–indefinite Sociedad Argentina de Medicina
2007–2017 American Board of Internal Medicine
2010–2020 Rheumatology (ABIM)

Committee Work

2006–2007 Internal Medicine Residency Selection Committee, NYU Medical Center
2008–2009 Internal Medicine Residency Selection Committee, NYU Medical Center
2008–present Rheumatology Fellowship Selection Committee, NYU Medical Center

2010	Invited Participant, NIAMS Roundtable: Preclinical Disease Phase of Skin and Rheumatic Autoimmune Diseases.
2015-present	Director, NYU Advanced Seminar in Psoriasis and Psoriatic Arthritis
2016-present	Member, Scientific Review Committee, Rheumatology Research Foundation Grants
2016-present	Member, Expert Team for the ACR/NPF Treatment Guidelines for PsA
2016-present	Member, National Psoriasis Foundation Scientific Advisory Committee
2016-present	Member, FDA Arthritis Advisory Committee

Professional Memberships

2010-present	Member, American College of Rheumatology (ACR) !
2013-present	Member, GRAPPA (Group for Research and Assessment of Psoriasis and Psoriatic Arthritis) !
2014-present	Founding Member, Psoriasis and Psoriatic Arthritis Multicenter Advancement Network ! (PPACMAN)

Honors and Awards

2007-2008	Rheumatology Teacher of the Year, NYU School of Medicine
2008-2009	Rheumatology Teacher of the Year, NYU School of Medicine
2009	Chief Rheumatology Fellow, NYU Hospital for Joint Diseases
2009	NY Chapter Arthritis Foundation – Inflammatory Arthritis Fellowship Award
2009-2010	Physician Scientist Training Program – NYU School of Medicine Dean’s Scholar
2009	American College of Rheumatology – Distinguished Fellow Award
2014	Gerald Weissmann Scholarship Award
2015	The Sixty Fifth Pemberton Lectureship, Philadelphia Rheumatism Society
2017	Charles Klein Scholarship Award

C. Contribution to Science

1. ! My early publications looked at the associations between the microbiome and rheumatoid arthritis (RA). For over a century, a prevailing hypothesis posited that a polymicrobial infection of the gums (periodontitis) was highly prevalent in RA patients and that specific bacteria (e.g., *Porphyromonas gingivalis*) had the ability to trigger autoimmune disease through posttranslational modification of certain peptides that serve as neo-epitopes for autoantibody production (i.e., anti-citrullinated peptide antibodies or anti-CCP). However, prior evidence was based on indirect observations. Utilizing high throughput DNA parallel-sequencing, we found that there is indeed a correlation between periodontitis and RA, and that certain periodontal bacteria are characteristic of new-onset disease in untreated RA patients. My collaborators and I have also found an overabundance of intestinal bacteria called *Prevotella copri* in the intestinal microbiome of newly diagnosed, untreated RA subjects. These *P. copri* bacteria appear to have local and systemic pro-inflammatory properties as recently validated by other groups.

- a. ! **Scher JU**, Ubeda C, Equinda M, Khanin R, Buischi Y, Viale A, Lipuma L, Attur M, Pillinger MH, Weissmann G, Littman DR, Pamer EG, Bretz WA, Abramson SB. Periodontal disease and the oral microbiota in new-onset rheumatoid arthritis. *Arthritis Rheum* 2012;64(10):3083-94. [PMCID: PMC3428472](#)
- b. ! **Scher JU**, Sczesnak A, Longman RS, Segata N, Ubeda C, Bielski C, Rostron T, Cerundolo V, Pamer EG, Abramson SB, Huttenhower C, Littman DR. Expansion of intestinal *Prevotella copri* correlates with enhanced susceptibility to arthritis. *ELife* 2012; Nov 5;2:e01202. [PMCID: PMC3816614](#)
- c. ! Zanin-Zhorov A, Lin J, **Scher J**, Kumari S, Blair D, Hippen KL, Blazar BR, Abramson SB, Lafaille JJ, Dustin ML. Scaffold protein Disc large homolog 1 is required for T-cell receptor-induced activation of regulatory T-cell function. *Proc Natl Acad Sci USA*. 2012 Jan 31;109(5):1625-30. [PMCID: PMC3277153](#)
- d. ! Zanin-Zhorov A, Weiss JM, Nyuydzefe MS, Chen W, **Scher JU**, Mo R, Depoil D, Rao N, Liu B, Wei J, Lucas S, Koslow M, Roche M, Schueller O, Weiss S, Poyurovsky MV, Tonra J, Hippen KL, Dustin ML, Blazar BR, Liu CJ, Waksal SD. Selective oral ROCK2 inhibitor down-regulates IL-21 and IL-17 secretion in human T cells via STAT3-dependent mechanism. *Proc Natl Acad Sci USA*. 2014 Nov 25;111(47):16814-9. [PMCID: PMC4250132](#)

2. ! We have further described a lack of gut microbial diversity in patients with psoriatic arthritis (PsA) due to the absence of *Ruminococcus* and *Akkermansia* species, two synergistic microorganisms that protect the intestinal integrity and that are also found lacking in patients with other related conditions, such as

inflammatory bowel disease (IBD). This was largely facilitated by the creation of the NYU Psoriatic Arthritis Center, which I have co-founded and now direct. This unique translational facility serves as a main hub for basic and clinical research in the fields of psoriasis and PsA, which has led to active collaborations with clinicians, immunologists (Dan Littman; Sergei Koralov) and computational biologists (Co-I on this grant Jose Clemente).

- a. ! **Scher JU**, Ubeda C, Artacho A, Attur M, Isaac S, Reddy SM, Marmon S, Neimann A, Brusca S, Patel T, Manasson J, Pamer EG, Littman DR, Abramson SB. Decreased bacterial diversity characterizes the altered gut microbiota in patients with psoriatic arthritis, resembling dysbiosis in inflammatory bowel disease. *Arthritis Rheumatol.* 2015;267(1):128-39. [PMCID: PMC4280348](#)
 - b. ! Manasson J, Shen N, Garcia Ferrer HR, Ubeda C, Iraheta I, Heguy A, Von Feldt JM, Espinoza LR, Kutzbach AG, Segal LN, Ogdie A, Clemente JC, **Scher JU**. Gut Microbiota Perturbations in Reactive Arthritis and Post-Infectious Spondyloarthritis. *Arthritis Rheumatol.* 2017 Oct 26. doi: 10.1002/art.40359. [Epub ahead of print]
 - c. ! Peled M, Strazza M, Azoulay-Alfaguter I, Silverman GJ, **Scher JU**, Mor A. Analysis of Programmed Death-1 in Patients with Psoriatic Arthritis. *Inflammation.* 2015; 38(4):1573-9. PMID: 25663558
 - d. ! **Scher JU**, Littman DR, Abramson SB. Microbiome in Inflammatory Arthritis and Human Rheumatic Diseases. *Arthritis Rheumatol.* 2016;68(1):35N45. [PMCID: PMC4789258](#)
3. ! Most recently, we have focused our attention on the pharmacomicrobiomics of antibiotics and immunotherapies in human RA/PsA and animal models of inflammatory arthritis. Our initial observations revealed that, although oral vancomycin induces drastic and consistent changes in the human intestinal microbiota, methotrexate promotes minimal or no community perturbations. This has opened the possibility to study gut microbiota as modulator of drug response and toxicity in autoimmunity.
- a. ! Isaac S*, **Scher JU***, Djukovic A, Jiménez N, Littman DR, Abramson SB, Pamer E, Ubeda C. Short- and long-term effects of oral vancomycin on the human intestinal microbiota. *J Antimicrob Chemother.* 2017 Jan;72(1):128-136. PMID: 27707993
 - b. ! Rogier R, Evans-Marin H, Manasson J, van der Kraan PM, Walgreen B, Helsen MM, van den Bersselaar LA, van de Loo FA, van Lent PL, Abramson SB, van den Berg WB, Koenders MI, **Scher JU**, Abdollahi-Roodsaz S. Alteration of the intestinal microbiome characterizes preclinical inflammatory arthritis in mice and its modulation attenuates established arthritis. *Sci Rep.* 2017 Nov 15;7(1):15613. PMID: 29142301
 - c. ! Abdollahi-Roodsaz S, Abramson SB, **Scher JU**. The metabolic role of the gut microbiota in health and rheumatic disease: mechanisms and interventions. *Nature Rev Rheumatol.* 2016; 12(8):446-55. PMID: 27256713

Complete List of Published Work in MyBibliography:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/jose.scher.1/bibliography/45390589/public/?sort=date&direction=ascending>

D. Research Support

Ongoing Support

1R03AR072182 NIH/NIAMS <i>Human Gut Microbiome as Modulator of Drug Response in Inflammatory Arthritis</i> The goal of this study is to investigate the pharmacomicrobiomics of immunosuppressive therapies in psoriatic and rheumatoid arthritis. <u>Role:</u> PI	Scher (PI)	07/01/2017 – 06/30/2019
1R01AR072363 NIH/NIAMS <i>Refining Outcome Measurement In Psoriatic Arthritis: Preparation For Pragmatic Trials</i>	Ogdie (PI)	07/01/2017 - 06/30/2020

This study aims to define the appropriate outcome measures and expected response rates for pragmatic trials in Psoriatic Arthritis such that all of the components for a pragmatic trial will be ready for implementation at completion of the award.

Role: Site PI

NYU Psoriatic Arthritis Center Scher (PI, Director) 12/31/2014 – present
[Philanthropic support]

To investigate clinical risk factors and the mechanisms behind early passage from psoriasis (PsO) to psoriatic arthritis (PsA) in response to skin/intestinal microbiota and other environmental/immune/genetic factors. This program explores longitudinal human biosamples and animal models of PsA.

Role: PI, Director

5U01AR068043 Solomon/Bathon (MPI) 09/28/2015- 06/30/2020
NIH/NIAMS

Treatments Against RA and Effect on FDG PET CT: The TARGET Trial

This study aims to compare the effects on vascular inflammation of 2 treatment regimens in a randomized controlled clinical trial.

Role: Site PI

CHOICE Sub-study Scher (PI) 03/31/2017 – 12/31/2019
Novartis

Gut Microbiome as determinant of IL-17-driven gut inflammation in Psoriatic Arthritis

The goal of this study is to investigate the role of commensal bacteria in the development of gut inflammation after IL-17 blockade.

Role: PI

Completed Research Support

1K23AR064318 Scher (PI) 03/31/2013 – 04/01/2018
NIH/NIAMS

The Role of Gut and Skin Microbiome in Psoriatic Arthritis

The goal of this study is to investigate the role of commensal bacteria in the development of psoriatic arthritis.

Role: PI

The Colton Center for Autoimmunity Abramson (PI) 05/01/2014 – 04/30/2017
The Judith and Stewart Colton Foundation

Project 1: Mechanisms behind autoimmunity in response to intestinal microbiota

The major goals of this project were to investigate the mechanisms behind autoimmunity in response to intestinal microbiota. This project explored animal models and *in vitro* T-cell immune response to intestinal microbial factors and the generation of autoimmunity. !

Role: Co-Investigator (Project 1) !

Innovative Research Grant #6262 Scher (PI) 03/01/2014 – 03/31/2017
Arthritis Foundation

Pan-microbiome in at-risk subjects and rheumatoid arthritis

To investigate the role of microbiota in mucosal sites in the development of rheumatoid arthritis.

Role: PI

Prime Award No.: 5U01AI101990-02 REVISED Buckner (PI)
NIH/NIAMS

Subrecipient: Scher (PI) 06/01/2014 – 11/30/2016

Subaward FY14109805 from Benaroya Institute

CSGADP Pilot: Role of Gut-Bacterial Species in Transition from Asymptomatic to Clinical Autoimmunity in Anti-Ro Positive Mothers of Children with Congenital Heart Block

To evaluate associations of gut dysbiosis and autoimmune disease progression in asymptomatic and pauci-symptomatic mothers of children with neonatal lupus (NL). !

Role: PI of Pilot Project (sub-award) !

NIH/NCRR 1 UL1 RR029893 (parent grant) Scher (PI)
Translational Research Program (KL2) !

04/01/2011 – 04/30/2013 !

To investigate mechanisms of disease in at-risk populations for the development of rheumatoid arthritis. !

Role: PI of KL2 !

NIH/NIAMS, 1 RC2 AR058986 Abramson/Littman (Co-PIs)

09/30/2009 – 08/31/2012

Role of Oral and Intestinal Microbiota in Rheumatoid Arthritis

Goals: 1) to create a multidisciplinary center to characterize human gut microbiome in patients with RA and related conditions. 2) To employ Th17-dependent mouse models of RA to study the role of microbiota/T cell interactions in development of disease, to directly assess whether specific bacteria in RA patients can be implicated in disease pathogenesis. 3) To study the role of human gut microbiota in RA pathogenesis.

Role: Co-Investigator