CURRICULUM VITAE

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Date of Birth: August 2, 1952

Place of Birth: Tel Aviv, Israel

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Marital Status: Married, three children

PROFESSIONAL EXPERIENCE

2017-	Director, The Center of Immunity, Inflammation and Infectious Disease, Guangzhou Medical University, Guangzhou, Guangdong province, **China**
2015-	Distinguished Professor Guangzhou Medical University, Guangzhou, Guangdong province, **China**
2015	Professor Emeritus University of California San Diego (UCSD)
2002-2015	Professor of Medicine, Department of Medicine, University of California, San Diego, La Jolla, California
1998-2002	Associate Professor of Medicine, Department of Medicine, University of California, San Diego, La Jolla, California
1996-1998	Assistant Professor of Medicine, University of California, San Diego, La Jolla, California
1993-1995	Assistant Research Immunologist, University of California, San Diego, La Jolla, California
1989-1991	Assistant Professor of Medicine, Hadassah University Hospital, Jerusalem, Israel
1988	Senior Physician, Department of Medicine, Hadassah University Hospital, Jerusalem, Israel
1986-1988	Chief resident, Department of Medicine, Hadassah University Hospital, Jerusalem, Israel
1982-1986	Resident, Department of Medicine, Hadassah University Hospital, Jerusalem, Israel
1982	M.D. Thesis: Evaluation of diagnostic accuracy in the clinical setting. Hebrew University, Jerusalem, Israel
1981-1982	Intern, Hadassah University Hospital, Jerusalem, Israel
1975-1980	Medical student at the Hebrew University, Hadassah Medical School, Jerusalem, Israel

RESEARCH INTEREST

2015-date	Gs/Gi signaling in macrophages regulates their inflammatory and anti-inflammatory properties: Implications for experimental colitis
2012-date	Gs/Gi signaling: Its impact on dendritic cell function, Th2/17 polarization and Th2- and Th17-mediated asthma
2012-date	Drugs as vaccine adjuvant
2010-2016	The physiological impact of TRP signaling in CD4 T cells: Implications for immunity and immune mediated diseases
2009-2016	TRP signaling in G-I physiology and pathology
2007-2011	Development of non-toxic mucosal adjuvant
2006-2011	The contribution of innate immunity in intestinal neoplasia
2005-2012	Intestinal epithelial cell biology
2004-2007	Development of irradiated bacterial vaccines
2004-2013	Host-commensal interaction in the G-I tract
2002-2006	Induction and reversal of airway remodeling
2002-2010	Mucosal innate immune response and its role in experimental colitis
1999-2003	Antigen trafficking and processing, implications for vaccine development
1997-2005	Antigen-ISS-conjugated (AIC): Implications for cancer, infectious and allergic disease.
1996-2005	Exploiting innate immunity for allergen immunotherapy.
1996-2003	Characterization of Immuno-stimulatory (ISS also known as CpG) and immune-inhibitory (IIS) DNA sequences
1996-date	Activation of innate immunity by microbial compounds
1995-1999	The adjuvanticity of DNA. Implications for gene therapy and immunotherapy
1994-1999	Mechanism of action of DNA vaccines. Implications for allergic, cancer, and infectious diseases
1991-1996	Gene transfer, gene therapy and genetic vaccination.
1988-1991	Cross reactions of anti-DNA autoantibodies to cellular surfaces. Patterns, characterization and implications (Prof. H. Benbassat, Prof. D. Eilat, Hebrew University, Jerusalem, Israel)
1988-1990	The effect of oral heparin on renal function and renal histology in proteinuric rats
1987-1989	Induction of "lupus nephritis" in the isolated perfused rat kidney model by using mouse monoclonal and human polyclonal anti-DNA antibodies
1986-1988	Isolation of anti-DNA antibodies, characterization of their binding to glomerular antigens and evaluating their role in the pathogenesis of SLE

GRANTS AND AWARDS

2016-2021	PHS NIH U01 AI-125860, Control of mucosal immunity by Gas- vs Gai-linked GPCR signaling in dendritic cells (PI).
2015-2016	PHS NIH R56 AI-110505, The inductive role of Gas/Gai signaling in dendritic cell polarization and function (PI)
2014-2017	Crohn’s and Colitis Foundation of America (CCFA, senior award), Regulation of colitogenic T cell response by TRPV1 (PI)
2012-2014	Broad Medical Research Foundation (BMRP IBD 0342): A novel approach to regulate colitis and colitogenic CD4 T cell response (PI).

2011-2016 PHS NIH UO1 AI-095623, Th17 subsets: Differential roles in immune defense mechanisms in the G-I mucosa (PI)

2011-2013 Crohn's and Colitis Foundation of America (CCFA, senior award), Cyclic AMP-induced Th17 subset: Its role in intestinal homeostasis and inflammation (PI)

2009-2014 PHS NIH PO1 DK-35108, Regulation of mucosal inflammation by Th17 subsets (PI of Project 3)

2009-2011 PHS NIH R21 AI-083328, Mucosal adjuvants regulate inflammation and immunity (PI)

2009-2011 PHS NIH R21 CA-133702, The impact of TLR on intestinal tumorigenesis (PI)

2008-2013 PHS NIH UO1 AI-077989, Protection against inhalation anthrax with inactivated spores (Project leader)

2007-2012 PHS NIH RO1 AI-068685, The diverse contribution of TLR pathways to intestinal homeostasis (PI)

2007-2009 Crohn's and Colitis Foundation of America (CCFA senior award), PRR-activated dendritic cells regulate experimental colitis (PI)

2004-2008 PHS NIH RO1 AI-57709, Mechanisms of CpG-induced inhibition of allergic asthma (PI)

2004-2006 PHS NIH R21 HL-79449, Mechanisms of tolerance induction by immunostimulatory DNA (PI)

2004-2008 PHS NIH RO1 AI-058743, TLR ligand-based vaccines for SIV/HIV (PI).

2003-2008 PHS NIH PO1 DK-35108, Mucosal immune regulation by bacterial DNA (PI of Project 3)

2002-2007 PHS NIH PO1 AI-40682, Critical analysis of the hygiene hypothesis (Program Director, PI of Project 3 and of Core A)

2002-2004 The Immune Tolerance Network (ITN). Allergen-ISS-conjugate (AIC): A novel approach for allergen immunotherapy. A clinical trial at UCSD and at John Hopkins University, Baltimore, MD (PI)

2000-2002 PHS NIH R21 AI 47078, ISS-based vaccines for HIV/SIV (PI)

1997-2001 PHS NIH PO1 AI 40682, Allergen gene vaccination. Principles and applications (Program Director, PI of a Project II and Core A)

1997-1999 University of California Biotechnology STAR Project Grant. Inhibition of the allergic response by gene-immunotherapy (PI)

1994-1997 PHS NIH RO1 AI 37305. Intradermal gene vaccination (PI)

1989 Hadassah Faculty of Medicine Award for Distinguished Research

1988-1990 Ministry of Health, Chief Scientist's Office. Cross reactions of anti-DNA auto-antibodies to cellular and extracellular surfaces: Patterns, characterizations and implications (PI)

1988-1991 The Israeli Academy of Sciences and Humanities, Basic Research Foundation. Direct binding of anti-DNA autoantibodies to cellular surfaces. Its implications in the induction and treatment of SLE (PI)

1986-1988 Ministry of Health, Chief Scientist's Office. Direct binding of anti-DNA autoantibodies to glomerular antigens (PI)

MEMBERSHIP OF PROFESSIONAL SOCIETIES

2014-2015 Senior Investigator Grant Review Committee of Crohn's & Colitis Foundation of America (CCFA)

2014-present Vice President: Academic Board of Guangdong Province Committee of Allergy and Clinical Immunology, **China**

2013-2015	Senior investigator Grant Review Committee of Crohn's & Colitis Foundation of America (CCFA)
2012-2013	Member: Academic Board of Guangdong Province Committee of Allergy and Clinical Immunology, **China**
2014-	Grant Review Committee of Crohn's & Colitis Foundation of America (CCFA)
2012-2016	Steering Committee: Mucosal Immunology Study Team (MIST), NIH, NIAID.
2011-2014	Member: Academic Board of Guandong Province Committee of Allergy and Clinical Immunology, **China**
2007-2009	Grant Review Committee of Crohn's & Colitis Foundation of America (CCFA)
2005	American Association of Gastroenterologists
1997	CIA-Collegium Internazionale Allergologicum
1995	American Association of Immunologists

BUSINESS AND INDUSTRIAL EXPERIENCE

2016	HEPLISAV, a CpG-based vaccine is submitted for FDA approval
2006	Founder of ProBio Biotechnology, Chicago, IL
2005	Founder of Adar Biotechnology, Chicago, IL
2000-2004	SAB member, Cytovax Biotechnologies Inc., Edmonton, Canada
1996-2001	SAB member, Dynavax Technologies Corporation, Berkeley, CA
1996-2000	Director, Dynavax Technologies Corporation, Berkeley, CA
1996-1999	Chief Scientific Officer, Dynavax Technologies Corporation, San Diego, CA
1996	Founder of Dynavax Technologies Corporation, San Diego, CA.

ORGAINZING COMMITTEES

2014	International Symposium on Allergy and clinical immunology, Guangdong Province. Guangzhou, **China**
2013	International Symposium on Allergy and clinical immunology, Guangdong Province. Guangzhou, **China**
2012	International Symposium on Allergy, Guangdong Province, Guangzhou, **China**
2011	International Symposium on Allergy, Guangdong Province, Guangzhou, **China**
2007	DNA vaccine, Malaga, **Spain**
2005	DNA vaccine, Monte Carlo, **Monaco**
2004	Twentieth Congress of the European Rhinologic Society and the International Symposium on Infection and Allergy of the Nose. Ankara, **Turkey**
2002	DNA vaccines, Edinburgh, Scotland, **United Kingdom**
2000	European task force for "Microbial products in allergy prevention and therapy"
1998	Immune Tolerance Network, Allergy section (Chicago IL)

SESSION'S CHAIR, INVITED SPEAKER AND VISITING PROFESSOR

2017

March — Chill pepper and immunity**.** Korean-American Scientists and Engineers Association, San Diego CA,

April — Th2 and Th17-mediated asthma: Novel immune pathway and implications for current and future therapies. Department of Immunology, The Hebrew University-Hadassah Medical School, Jerusalem **Israel.**

2016

Jan — Novel cellular and molecular insight into the pathogenesis of asthma: Implication for therapy. Department of Pathology Research Lecture Series UCSD CA

May — Asthma Part II. Allergy Branch of the State Key Laboratory of Respiratory Disease, Guangzhou Medical University, **China**

Jun — Th2- and Th17-mediated asthma: Similar pathways, different phenotypes. Sino-Hoffman Institute, Guangzhou Medical University, **China**

2015

Nov — Beta 2 agonists and Th17 response: Implications for neutrophilic asthma (Part 1). State Allergy Laboratory, Guangzhou Medical University, **China**

Jun — GPCRs and T-helper cell differentiation: Implications for allergy and asthma endotypes. Department of Pharmacology and Experimental Therapy, Institute of Experimental and Clinical Pharmacology and Toxicology, Tuebingen, **Germany.**

May — A new pathway of Th2 induction: Implications for the pathogenesis and the treatment of asthma. Tel Aviv University, Tel Aviv, **Israel.**

April — TRP and immunity. UCSD- UMC Utrecht University Symposium, UMC Utrecht University, Utrecht, **The Netherlands**

April — Asthma endotypes and anti-asthmatic treatment. UCSD- UMC Utrecht University Symposium, UMC Utrecht University, Utrecht, **The Netherlands**.

April — A new pathway of Th2 induction: Implications for allergic diseases. Immunology Institute Mount Sinai School of Medicine NYC, NY

Jan — The Immediate Protective Response (IPR). Guangzhou Medical University, **China.**

2014

Dec — Fire in the gut: How does TRPV1 triggering inhibit intestinal tumors? International Symposium on Allergy and clinical immunology. Guangzhou Medical University, **China**

Oct — Epithelial TRPV1 and intestinal tumorigenesis: La Jolla Immunology Conference, Salk Institute, La Jolla CA.

Sep — TRPV1 regulates intestinal epithelial cells proliferation and tumor growth. Mucosal Immunology Study Team (MIST) annual meeting, NIAID/NIH Bethesda MD.

July — A non-PRR pathway induces Th2 response and allergic phenotype: Implications for immunology and personalized medicine. The Weizmann Institute, Rechovot**, Israel.**

May — Dendritic cells induce a Th2 response via a non-pattern recognition receptor (PRR), Technical University, Munich, **Germany**

May — Dendritic cell, cAMP and immune bias. University of Aberdeen, Aberdeen (Scotland), **Great Britain**

May — The role of Gas in dendritic cells function: Insight into allergy. Experimental Biology 2014, San Diego CA

Feb A new pathway of the induction of Th2 response and allergic phenotype, San Diego CA, La Jolla Institute of Allergy and Immunology

2013

Dec GPCR signaling in dendritic cells affects Th2 immunity and experimental asthma. International Symposium on Allergy, Allergens and Immunotherapy. Guangzhou Medical University, **China.**

Dec TRPM8 signaling regulates intestinal inflammation. Guangzhou Medical University, **China.**

Oct Cyclic AMP: A switch factor of Th17/Th2 differentiation, Mucosal Immunology Study Team (MIST) annual meeting, NIH/NIAID, Portland OR.

Mar Dendritic cells and Th2: Implications for allergic diseases, Pediatric Immunology, Utrecht Medical Center, Utrecht University, **The Netherlands**.

Mar Innate immunity: Master Class, Department of Pediatrics, Utrecht Medical Center, Utrecht University, **The Netherlands**.

Feb Beyond neurons: TRP and intestinal homeostasis. Faculty of Medicine, School of Medicine, Bar-Ilan University, Zeffat, **Israel.**

Feb The origin of Th2 response: An alternative approach. Department of Pediatrics, The Hebrew University-Hadassah Medical School, Mount Scopus, Jerusalem, **Israel.**

Feb TRP and G-I cancer: A spicy twist. Department of Immunology, The Hebrew University-Hadassah Medical School, Jerusalem **Israel.**

Jan The homeostatic role of TRPV1 in intestinal epithelial cell biology, The Faculty of Life Science, Tel Aviv University, Tel Aviv, **Israel.**

Jan TRPV1 signaling regulates colorectal cancer. Department of Biochemistry and Molecular Biology, The Hebrew University-Hadassah Medical School, Jerusalem **Israel.**

2012

Dec The origin of Th2 response: An alternative approach. Department of Immunology, School of Medicine, The Hebrew University-Hadassah Medical School, Jerusalem, **Israel.**

Dec Regulating allergic diseases with innate immunity. Department of Medicine, Hadassah University Hospital, Mount Scopus, Jerusalem, **Israel.**

Dec TRPV1 and G-I cancer: A spicy twist. The Weizmann Institute, Rechovot, **Israel.**

Nov TRP and T cell function: Department of Medical Neurobiology, The Hebrew University-Hadassah Medical School, Jerusalem, **Israel.**

Nov TRPV1 and intestinal cancer: Department of Medical Neurobiology, The Hebrew University-Hadassah Medical School, Jerusalem, **Israel.**

Sep The role of innate immunity in allergic response. Guangzhou Medical University, **China.**

Sep Gene-environment interactions are necessary for the induction of colorectal cancer. Guangzhou Medical University, **China.**

May TRPs: Sensors and effectors of immunity. The 3rd Schloss Elmau Meeting and the 4th Else Kroner-Fresnius-Symposim, Schloss Elmau, Elmau, **Germany.**

April Intestinal Neoplasia: Gene-Environment Interaction. Fundacion para la Investigacion en et Hospital General de Alicante, Alicante, **Spain.**

Mar TRPV1 contributes to TCR activation: Utrecht Medical Center, Utrecht University, **The Netherlands**.

Mar Gut and immunity: Master Class, Department of Pediatrics, Utrecht Medical

Center, Utrecht University, **The Netherlands**.

Mar T helper cells and colitis-associated cancer. Department of Gastroenterology, Rabin Medical Center, Petach Tikva, **Israel.**

Mar Genes and environment in the induction of colon cancer. Infection, Inflammation and Malignancy Meeting: Tel Aviv University, Rabin Medical Center, Petach Tikva, **Israel.**

Mar From plant to transplant: How does chili affect immunity? Department of Immunology, The Weizmann Institute, Rechovot, **Israel**

Feb Th17 subsets: Differential roles in immune defense mechanisms at the G-I mucosa: Mucosal Immunology Study Team (MIST), Immune Defense mechanism s at the Mucosal Surface, NIH/NIAID, NIH/NIAID, Bolger Center, Washington DC.

Jan Chili and Immunity. Rangos Research Center, University of Pittsburgh Medical Center, Pittsburgh PA.

Jan TRP and Immunity: Seminars in Gene Therapy, Institute for Genetic Therapy, Hadassah Hospital, Hebrew University, Jerusalem **Israel.**

2011

Nov From a shot in the dark to a shot in the arm: Adventures in allergy research. Dankook University, Dankook **Korea**.

Nov TRPV1 and immunity, School of Dentistry, Chonnam National University, Gwangju **Korea**.

Nov Gut, germs and genes. The Korean Association of Immunology (2011), Seoul **Korea.**

Nov From plant to transplant: How does chili affect immunity. The **PRISM** lecture, University of California San Diego (UCSD) CA.

Oct TRPV1: A hot key for immunity, Genomic Institute of the Novartis Research Foundation, La Jolla CA.

Oct A trip with TRP, the 37th La Jolla Immunology Conference, La jolla CA.

May The oncogenic role of intestinal microflora on intestinal tumors, University of Cambridge Addenbrooke's Hospital, Cambridge, **Great Britain**.

May The divergent role of IL-1 signaling in sterile and non-sterile inflammation. EULAR London, **Great Britain**.

May Innate, adaptive and innative immunity. RAI seminar, University of California San Diego, La Jolla CA.

Apr Innative immunity. Immunology Institute, Mount Sinai Hospital, New York, NY

Apr Innate immunity and oncogenesis, Department of Hematology and Oncology, NYU Medical Center, New York, NY

Apr Gut, Germs and Genes. American Association of Cancer Research (AACR) 102nd annual meeting, Orlando FL

Mar Innate, Adaptive and Innative immunity. Technical University, Munich, **Germany**

Mar Microflora and Mycroflora. Intestinal Mucosal Homeostasis and Disease Workshop, Hannover, **Germany**

Feb Organ-specific innate immunity. American Society of Microbiology (ASM): Bio-defense and emerging diseases meeting, Washington DC.

Jan Canonical and non-canonical Th17 subsets: Department of Gastroenterology, Basel University Hospital, **Switzerland**

2010

Dec Th17 subsets: Department of Immunology, Hebrew University Jerusalem **Israel**

Dec Th17 differentiation, a message from a secondary messenger: The Weizmann Institute, Rechovot, **Israel**

Nov Host microbial interactions and intestinal tumorigenesis: Department of Biology graduate program.

Oct Cyclic AMP and Th17 differentiation: Northwestern University, Chicago, IL.

Oct Th17 subsets, Program in Immunology, The University of Chicago, Chicago, IL.

Sep Gut, Germs and Genes: A dangerous liaison, research seminar series, Department of Pathology UCSD.

Sep Microflora and Mycroflora: Division of Gastroenterology, research seminar, UCSD.

May Th17 cells: Canonical vs. non-canonical differentiation pathways: The American Association of Immunologists (AAI) annual meeting, Baltimore, MD.

Mar TLR-TCR interactions: Division of infectious diseases, research seminar series, UCSD.

Feb Mycroflora and Microflora: Cardiovascular science conference series. University of California San Diego, La Jolla CA.

Feb The microflora: How does it enhance intestinal tumorigenesis? Rheumatology, allergy and immunology seminar series. University of California San Diego, La Jolla CA.

Jan Microflora and intestinal tumorigenesis: Southern Illinois University School of Medicine, Springfield IL.

Jan TLR and colitis: The untold story. Department of Immunology, Hebrew University, Jerusalem **Israel**

Jan Gut, germs and genes: The tumorigenic triad. The Weizmann Institute, Rechovot, **Israel**

2009

Dec TLR-TCR interaction: Innate, innative and adaptive receptors. Utrecht University, **The Netherlands**.

Nov Gut, germs and genes: The tumorigenic triad. Changing Concepts in Cancer Etiology: The Role of the Human Microbiome, National Cancer Institute (NIH), Rockville MD.

Oct Cholera toxin and its mucosal adjuvanticity: The role of Th17 cells, Division of infectious diseases, research seminar series, UCSD.

Jul A gut reaction: Intestinal innate immune response. The 14th international congress of mucosal immunology (ICMI), Boston, MA

Jun Infection, inflammation and chronic inflammatory disorders: Common and divergent solutions to problems at the host-environment interface", The 99th Dahlem-Workshop, Dahlem Konferenzen, Berlin, **Germany**

Jun Cholera toxin: Mechanism and applications, The 8th Elsinore meeting on infection immunity: Prophylactic and therapeutic intervention in host-pathogen interaction, LO-Skolen, Elsingore, **Denmark**

May Regulation of innate and adaptive immunity by the lung microenvironment, American Thoracic Society, San Diego CA.

May Organ specific innate immunity: A gut reaction. TRiPR (Translational research in pediatric rheumatology), Innate Immunity and the pathogenesis of Rheumatic Diseases, Genoa **Italy**

Jan Organ-specific innate immunity. Atherosclerosis and Vascular Biology Seminar Series, UCSD, La Jolla CA.

Jan Gut, germs and genes: The tumorigenic triad. Keystone Symposia: "Innate adaptive and regulatory responses to intestinal micorbioata" conference, Taos, NM.

2008

Dec The contribution of micoflora to intestinal tumorigenesis. Department of Immunology, Hebrew University, Jerusalem **Israel**

Nov Gut, germs and genes: The tumorigenic triad. Arizona Cancer Center, The University of Arizona, Tucson, AZ.

Nov Regulation of innate immunity in the gastrointestinal tract. The 41st Annual Meeting Society for Leukocyte Biology, CO (Keynote lecture).

Oct Organ-specific regulation of innate immunity: A gastro-intestinal perspective. Department of Microbiology and Immunology, Cornell University, Ithaca, NY

Oct Innate immunity, TLR and experimental colitis: Implications for IBD. Japanese Digestive Disease Week (JDDW), Tokyo, **Japan**

Oct Basic concepts in Gastroenterology (Session chair), Japanese Digestive Disease Week (JDDW), Tokyo, **Japan**

Jun Regulation of the APC(Min) phenotype by intestinal microbiota, Department of System Biology, Harvard Medical School, Boston, MA

Jun Wnt and beyond: How innate immunity enhances intestinal neoplasia, Division of Gastroenterology, MGH, Harvard Medical School, Boston, MA

Jun Regulation of intestinal tumorigenesis by innate immunity. Tumor Immunology Seminar Series, The Moores Cancer Center, UCSD, CA

May From a shot in the dark to a shot in the arm, the 25th annual meeting of the API, Berlin, **Germany**

May Innate and adaptive immunity interactions: Applications and implications for allergic disease. Max-Planck Institute, Berlin, **Germany**

Apr Organ-specific regulation of innate immunity: Introduction and concepts. American Association of Immunologists (AAI), San Diego, CA

Mar Visiting Professor, The Brain-Body Institute, St Joseph's Healthcare, Hamilton, Ontario, **Canada**

Mar Interplay between innate and adaptive immunity in the regulation of allergic asthma. MacMaster University, Hamilton, Ontario, **Canada**

Mar The inductive role of bacteria in intestinal neoplasia. Research Seminar, Division of Infectious Diseases, UCSD, CA

Feb Microbiota, innate immunity and neoplasia. Basic Seminar Series, Department of Surgery, UCSD, CA

Feb The role of innate immunity in intestinal tumorigenesis, G-I symposium, Division of Gastroenterology, UCSD, CA

Feb Moving forward to the beginning: Irradiated bacterial vaccine. The infection and immunology visiting lecturer series, LSU health science center, New Orleans, LA

Feb TLR, innate immunity, adaptive immunity and regulation of allergic response: A buildup for immunomodulation. LSU health science center, New Orleans, LA

Jan Immunomodulation and immunotherapy of allergic disease: The role of innate immunity. Biomedical and Clinical Research Seminar. UCSD Hospital (Hillcrest), San Diego, CA

2007

Dec Innate immunity and adaptive immunity: How do they modulate allergic diseases. Department of Immunology, Hadassah Medical School, Hebrew University, Jerusalem **Israel**

Dec TLR signaling regulates intestinal tumorigenesis. Inflammation induced cancer, Hebrew University, Jerusalem **Israel**

Nov When Louis met Marie: A new-old paradigm for vaccination. 9th Symposia of the National Health Research Institute (NHRI), Hsunchu **Taiwan**

Nov Type-1 IFN: New assignments in the G-I tract. College of Medicine, National Taiwan University, Taipei **Taiwan**

Nov TLR-based therapeutics for allergic diseases, College of Medicine, National Cheng Kung University, Tainan **Taiwan**

Nov Allergy, TLRs and novel immunotherapeutics, College of Medicine, Chang Guang University, Taoyuan **Taiwan**

Oct Irradiated bacterial vaccine. Challenge of global vaccine development, Keystone Symposia/Bill and Melinda Gate Foundation, Cape Town **South Africa**

Jun Dendritic cells control colonic homeostasis, The 2nd International Conference on Crossroads between Innate and Adaptive Immunity, Crete, **Greece**

Jun The T-cell independent role of dendritic cells in experimental colitis, FOCIS – 2007, San Diego CA

Mar The polarizing-tolerizing mechanism of intestinal epithelial cells, Toll-like receptors and beyond, Kloster Seeon **Germany**

Feb TLR9 agonists for allergic diseases: Mechanisms and applications, AAAAI, San Diego CA.

Feb Th2, allergy and innate immunity. Seminars in Pharmacology: The biology of inflammation – new frontiers in drugs and disease. University of California San Diego CA.

Feb From a shot in the dark to a shot in the arm: Making a vaccine against hay fever. The **PRISM** lecture, University of California San Diego (UCSD) CA.

Jan Making a vaccine against Hay Fever, Department of Pediatric, University of Utrecht, Utrecht **The Nederland**

2006

Dec When Louis met Marie, or irradiated bacterial vaccine, Department of Immunology, Hebrew University, Jerusalem **Israel**

Nov G-irradiated bacteria, a novel vaccination platform, Department of Immunology, University of Geneva, Geneva **Switzerland**

Nov Making a vaccine against hay fever, Department of Gastroenterology, University of Regensburg, Regensburg **Germany**

Oct Irradiated bacterial vaccine: A novel platform technology. UCSD-CONNECT, San Diego CA

Oct The “polarizing-tolerizing” mechanism of intestinal epithelium: Its relevance to colonic homeostasis. La Jolla Immunology Conference, Salk Institute, San Diego CA

Sep TLR pathways, colonic epithelium and the maintenance of homeostasis, University of Michigan Ann Arbor MI

May Mechanisms of probiotics in intestinal inflammation. Barrett K and Raz E (Chairs). American Gastroenterological Association, Digestive Disease Week, Los Angeles CA

May TLR pathways and the maintenance of colonic homeostasis. American Gastroenterological Association, Digestive Disease Week, Los Angeles CA

May The lung: A case for organ-specific innate immunity. American Thoracic Society, San Diego CA

May Irradiated bacterial vaccines: Moving forward to the beginning. Chiron, Vaccine Research, Emeryville CA

Mar TLR signaling in colonic epithelial cells. Host-microbial interaction symposium, American Gastroenterological Association, Marina Del Rey, Los Angeles CA

Mar Innate immunity: Textbook vs. reality. Tolerance, autoimmunity and immune regulation, Keystone Symposium, Breckenridge CO

Mar Colonic epithelium: The homeostatic role of innate immunity. Crohn's & Colitis Foundation of America (CCFA), St. Petersburg, FL

Mar The pro- and anti-allergic properties of TLR ligands. AAAAI, Miami Beach. FL.

Feb Innate immunity: Its role in colonic homeostasis and inflammation. Centocor Inc. Randor PA

Jan Innate immunity: Modulation and immunotherapy from mouse to human. Strategies for the control of IgE-mediated allergic disorders, Tokyo **Japan**

Jan IFNa/b: New assignments in the colon, RIKEN Research Center for Allergy and Immunology, Yokohoma, **Japan**

2005

Dec Type-1 IFN: A new role in the G-I tract, Medical College of Georgia (MCG), Augusta GA

Nov Probiotic microbes: The scientific basis. A workshop organized by the American Academy of Microbiology, Baltimore, MD

Nov TLRs in experimental colitis. Brown University, Providence, RI

Oct The homeostatic role of type 1 IFN in colonic mucosa. Fine tuning the immune system for the treatment of allergic and autoimmune diseases, Rome, **Italy**

Sep Recruitment seminar: TLR, colitis and colonic homeostasis. Case Western Reserve University, Cleveland, OH

Sep Innate immunity in experimental colitis: A friend or a foe? "IBD: Research drives the clinic". Munster, **Germany**.

Aug The diverse role of TLR-L in experimental colitis. GlaxoSmithKline, Harlowe, **United Kingdom**

Jul Innate immunity regulates colonic homeostasis. Weizmann Institute, Rechovot, **Israel**

Jun The protective role of innate immunity in experimental colitis. Technical University of Munich, The Institute for microbiology, immunology and hygiene, Munich, **Germany**

Jun TLR-L in experimental colitis: Do they provide a danger or friendly signal? Old Herborn University, Herborn, **Germany**

Jun TLR-based vaccines: "From innate immunity to Vaccines". San Diego CA.

Jun Antigen-TLR-Ligand-Conjugates: From mouse to human, American Society of Microbiology, Atlanta GA

Apr Probiotic, TLR and experimental colitis, Department of Biomedical Sciences, University of California Riverside, Riverside, CA

Mar TLR and allergic inflammation, Chair, American Academy of Allergy Asthma and Immunology (AAAAI), San Antonio, TX

Mar TLR-Ligands: Agonists and antagonists of allergic inflammation, American Academy of Allergy Asthma and Immunology (AAAAI), San Antonio, TX

Mar Indoleamine 2,3 dioxygenas controls experimental asthma. American Academy of Allergy Asthma and Immunology (AAAAI), San Antonio, TX

Feb Sleeping Beauty or the Beast: How do alveolar macrophage change their phenotype from dormant to activated phagocytes. Division of pulmonary and Critical Care Medicine, School of Medicine, Washington University in St. Louis, St Louis MI

Jan	Dr. Jekyll and Mr. Hyde: The double phenotype of alveolar macrophages, Immunology Interest Group (IIG), NIH, Bethesda MD
Jan	Immunostimulatory DNA for SIV/HIV vaccine, NCI, SAIC Frederick MD
Jan	The protective role of innate immunity in experimental colitis, Mucosal Immunity Section, NIH-NIAID, Bethesda MD

2004

Nov	Allergen-ISS-Conjugate (AIC): From mice to humans. DNA vaccine (2004) Monte Carlo **Monaco**
Oct	How do alveolar macrophages (AM) change their phenotype from dormant to activated phagocytes? The Society of Leukocyte Biology, Toronto **Canada**
Oct	Indoleamine 2,3 dioxygnease inhibits experimental asthma. Eosinophilia-Myalgia Syndrome (EMS) workshop. NIH, NIAID, Bethesda MD
Oct	The protective role of TLR activation by probiotics. Fourth World Congress on Vaccines and Immunization, Tsukuba Science City **Japan**
Oct	Allergen-ISS-Conjugate: From mice to humans. Fourth World Congress on Vaccines and Immunization, Tsukuba Science City **Japan**
Oct	Probiotics: Principles and applications. Fukushima College of Medicine, Fukushima, **Japan**
Jul	Antigen-ISS-Conjugate (AIC): An alternative for a DNA vaccine? Vical, San Diego CA
Jul	AIC: A Novel method for vaccine engineering. Hadassah Medical School, Hebrew University, Jerusalem **Israel**
Jun	Probiotics: Mechanisms of action in experimental colitis. University Medical Center, University of Geneva, Geneva **Switzerland**
Jun	Immunostimulatory DNA: A double-edged sword for genetic vaccination. American Society of Gene Therapy, Minneapolis MN.
Mar	Interactions between innate and adaptive immunity. American Academy of Allergy Asthma and Immunology (AAAAI), San Francisco CA.
Mar	Innate immunity, inflammatory bowl disease and probiotics: The good the bad and the ugly. The **PRISM** lecture, University of California San Diego CA.
Jan	Probiotics for inflammatory bowel disease: Mystery unfolding. Rational design of vaccines and immunotherapeutics, Keystone Symposia, Keystone CO.

2003

Aug	Probiotics: A TLR perspective. Nestle Inc. Lausanne, **Switzerland**.
June	Exploiting innate immunity for allergen immunotherapy. The XXII Congress of the European Academy of Allergology and Clinical Immunology, Paris, **France**.
May	Probiotics and IBD, Danisco Inc. Copenhagen, **Denmark**.
May	Exploiting Innate immunity for vaccine's design. Immunologic Activation: Rational Design of Vaccines and Immunotherapeutics. Nobel Forum, Karolinska Institute, Stockholm **Sweden**.
May	Exploiting innate immunity for clinical medicine, University of Washington, Seattle WA.
Mar	Antigen-ISS-Conjugate: From mouse to human. Second International Symposium: Molecular Diagnostic and Skin Gene Therapy, Dusseldorf **Germany**.
Mar	CpG-DNA: NIH Symposium, American Academy of Allergy Asthma and Immunology (AAAAI), Denver, CO.
Jan	Cross-presentation: A TLR perspective. The Scripps Institute of Research, La Jolla CA.

2002

Dec Antigen-ISS-Conjugate (AIC): A new immunogen. Sixth NIH Symposium on Therapeutic Oligonucleotides: Antisense, RNAi, Gene-repair, Enhancer- Decoy, CpG and DNA Chips. NIH, Bethesda, MD.

Nov Immunostimulatory DNA modulates allergic asthma. 24th Symposium of the Collegium Internationale Allergologium (CIA), **Bermuda**

Oct Induction of cross-presentation by microbial TLR ligands. DNA vaccines 2002, Edinburgh, Scotland, **United Kingdom.**

Oct Cross-presentation: The extraordinary role of TLRs. University Medical Center, Geneva, University of Geneva, **Switzerland.**

Sep ISS-ODN based vaccination and immunomodulation: Two complementary strategies for the treatment of allergic diseases. New York Allergy and Asthma Society. Columbia University, New York, NY.

Jun Not all the TLR ligands are born equal: The case of cross-presentation. Stanford University, CA.

May Cross-presentation: Implications for vaccine design for HIV. Vaccine Research Center, NIH, Bethesda, MD.

May Microbial TLR-ligands as natural adjuvants. 8th National Symposium: Basic aspects of vaccines. Walter Reed Army Institute of Research, Silver Spring, MD.

Apr Immunostimulatory DNA for experimental colitis. Microbial-epithelial-lymphocytes interactions in mucosal immunity, Keystone Symposia, Breckenridge, CO.
-Chairman – Inflammatory and immune responses in IBD

Apr Induction of cross presentation by microbial nucleic acids. Gene-based vaccines: Mechanisms, delivery systems and efficacy. Keystone Symposia, Breckenridge, CO.
Chairman – The impact of CpG immunostimulatory DNA on vaccine

Mar DNA-based therapy for allergic disease. 5th ISBAAR (International Symposium on Basic Approach to Allergic Rhinitis), Seoul, **Korea.**

Mar Immunostimulatory DNA: Basic aspects and potential applications. Seoul National University, College of Medicine, Seoul, **Korea.**

Feb Innate immunity, adaptive immunity and diseases. Sha'arei Tsedek University Hospital, Jerusalem, **Israel.**

Feb TLR and HIV vaccine development. Department of Immunology, The Hebrew University, Jerusalem, **Israel.**

Feb DNA-based immunotherapeutics for asthma. American Academy of Allergy Asthma and Immunology (AAAAI), New York, NY.

Jan ISS-based vaccines for HIV. AIDS Vaccine Research Committee (AVRC) meeting, Bethesda, MD.

2001

Apr Immunostimulatory DNA: Applications for allergic disease. V International consensus conference of allergology and clinical immunology. Universita Cattolica del Sacro Cuore, Rome, **Italy.**

Apr Immunostimulatory DNA and vaccine design: Theory and practice. Tel-Aviv University, Tel-Aviv, **Israel.**

Apr Innate immunity, immunostimulatory DNA and allergy; how do they come together. Basic and experimental allergy. Imperial College of Science, Technology and Medicine, London, **England.**

Mar DNA based immunotherapeutics for allergy. American Academy of Allergy Asthma and Immunology (AAAAI), New Orleans, LO.

Feb DNA-PK and TLR9, how do they come together? The case of immunostimulatory DNA. Osaka University, Osaka, **Japan.**

Feb Immunostimulatory DNA: Principles and applications for allergic disease, University of California Davis, Davis, CA.

Jan Immunostimulatory DNA: The case of mycobacterium and indoleamine dioxygenase, Cornell University, New York, NY.

Jan DNA PK, innate immunity and novel vaccine design, Rockefeller University, New York, NY.

2000

Sep Novel approaches for immunization, Hadassah Medical School, Jerusalem, **Israel.**

Jul Immunostimulatory DNA for allergic disease. Congress of the European Academy of Allergology & Clinical Immunology, Lisbon, **Portugal.**

Jun Immuno-stimulatory DNA challenging traditional immunology. La Jolla Institute of allergy and immunology, La Jolla, CA.

Jun ISS-based vaccines for HIV. NIH retreat, Cumberland, MD.

May Immunostimulatory DNA inhibit allergic inflammation. 23rd Symposium of the Collegium Internationale Allergologium (CIA), Hakone, **Japan.**

Apr International Symposium on Gene Technology and Skin Gene Therapy, University of Essen, Essen, **Germany.**

Mar Immunostimulatory DNA: Applications for allergic diseases
DNA vaccination for allergic diseases. American Academy of Allergy Asthma and Immunology (AAAAI), San Diego, CA.

Mar Immunostimulatory DNA challenging traditional immunotherapy. World Asthma Forum, San Diego, CA.

1999

Oct Immune Tolerance Network (ITN). Inaugral Meeting, Chicago, IL.

Sep Immunobiology of Bacterial CpG-DNA, International Workshop, Schloss Elmau, Upper Bavaria **Germany.**

Aug Visiting Professor, Stanford University, Immunology Program, Palo Alto, CA.

Jul Visiting Professor, University of California Los Angeles, Division of Pulmonology, Los Angeles CA.

Jun Centeon First Annual Forum on Immunologic Sciences: A View of the Cutting Edge, Dallas, TX.

May Visiting Professor, Fukushima College of Medicine, Fukushima, **Japan.**

May Jyohoku Allergy and Respiratory Disease Seminar, Tokyo, **Japan.**

May ISS as an adjuvant for SIV/HIV-based vaccine. New concepts in HIV vaccine development, NIH, Bethesda MD.

May American Society for Microbiology (ASM), Chicago, IL.

Apr Keystone Symposia. Molecular Approach to Human Viral Vaccines, Snowbird UT.

Apr Immunotherapeutic DNA: Applications for asthma. American Thoracic Association, San Diego CA.

1998

Dec DNA and the allergic response. World Asthma Meeting 1998, Barcelona, **Spain.**

Nov Immunostimulatory DNA sequences extinguish allergic asthma. Annual meeting of the Israeli society for allergy and clinical immunology, Maale Hachmisha, **Israel.**

Nov Immunostimulatory DNA sequences and the immune response. Department of Immunology, Hebrew University, Jerusalem **Israel.**

Nov DNA and gene therapy. The sixth meeting of the European working group on human gene transfer and therapy. Jerusalem **Israel.**

Sep Immunostimulatory oligonucleotides modify pulmonary allergic inflammation. CIA**,** Corfu, **Greece.**

May Visiting Professor. The adjuvanticity of DNA: Application for tumor immunotherapy. Department of Hematology, Sloan Kettering Hospital, New York, NY.

May Visiting Professor. Gene vaccination: The role of immunostimulatory DNA sequences, Department of Microbiology, Mount Sinai Hospital, New York, NY.

Apr Immunostimulatory DNA sequences modulate allergic pulmonary inflammation. American Thoracic Society (ATS). Chicago, IL.

Apr DNA vaccination: Principles and practice, Department of Medicine, University of Virginia, Charlottesville, VA.

Apr DNA vaccines and their therapeutic potential for allergic diseases. Swineford Allergy Conference, Charlottesville, VA.

Mar Immunostimulatory DNA sequences (ISS) inhibit allergic response. In International immunology meeting, "Innovative strategies for immune modulation of host response", Bodega bay, CA.

Feb Modulation of T cell response by immunostimulatory DNA sequences, Pasteur Institute, Paris, **France.**

1997

Dec Regulation of the allergic response by allergen gene vaccination, Immunologic tolerance for immune system mediated diseases, NIAID/AAAAI, NIH, Bethesda MD.

Dec Immunostimulatory DNA sequences extinguish allergic asthma. NIAMS, NIH, Bethesda MD.

Dec Immunostimulatory DNA sequences. National Eye Institute, NIH, Bethesda MD.

Nov Gene vaccination: Mechanisms and applications. Third annual meeting of genetic vaccination. IBC, Orlando, FL.

Jul Gene vaccination: The role of the immunostimulatory DNA sequences Gordon Conference on genetic vaccine. Plymouth, NH.

May Allergen gene vaccination: A novel approach for immunotherapy. Asthma V. Ischia, **Italy.**

May Negative regulation of the allergic response by gene vaccination. Vaccinotherapy for autoimmune and infectious diseases. Organized by Pasteur Merieux and NIH, Annecy, **France.**

Apr Gene vaccination: Principles and application. Current aspects of vaccinology and molecular virology. Dana point, CA.

Feb Molecular approaches to immunomodulation: Allergen DNA. American Academy of Allergy, Asthma and Immunology, San Francisco, CA.

Feb Naked DNA vaccines for immunotherapy. American Academy of Allergy, Asthma and Immunology, San Francisco, CA.

1996

Oct Intradermal gene delivery. Parapsoriasis workshop, University of Utah, Snowbird, UT.

Jul Allergen gene vaccination. Workshop on food allergy, NIAID, Bethesda, MD.

May Immune modulation by DNA. American Society of Microbiology, New Orleans, LA.

Mar Gene Vaccination: Principles and applications. UC Davis, CA.

Mar The Adjuvanticity of DNA. Gene therapy and immunotherapy of cancer. Weizmann institute of science. Ein Gedi, **Israel.**

Feb DNA vaccination: Application for infectious and allergic diseases. International meeting of nucleic acid vaccine (Organized by the WHO and the NIH), Bethesda, MD.

Jan Gene therapy for allergic diseases. NIAID, Bethesda, MD.

1995

Dec Gene vaccination: Implication for infectious and allergic diseases. La Jolla Institute of Allergy and Immunology. San Diego, CA.

Oct Induction of Th1 response and inhibition of IgE synthesis by gene vaccination. Federation of the Israeli Society of Experimental Biology, Eilat, **Israel.**

Aug Intradermal gene vaccination. American Urologic Association. Houston, TX.

1994

Apr Gene vaccination. American Society of Microbiology (ASM). Las Vegas, NV.

Feb Intradermal gene vaccination. Implication for research and clinical medicine. Gene therapy and immunotherapy of cancer. Weizmann Institute, Ein Gedi, **Israel.**

EDITORIAL BOARD AND EDITOR

1. Translational Bioinformatics: Allergy Bioinformatics (Volume 8), Ailin Tao and **Raz E.,** Editors, Springer Dordrecht Heidelberg New York London 2015.

2. Editorial Board, *Frontier in Bioscience*, 2006-2014.

3. Editorial Board, *Biology Direct* (Immunology section), 2006-20015.

4. Editorial Board, *American Journal of Physiology*, *Gastrointestinal and Liver Physiology,* 2002-2013.

5. Microbial DNA and Host immunity. **Raz E**., Editor. Humana Press, Totowa, New Jersey, 2002.

6. Editorial Board, *Seminars in Immunopathology*. 2000-.

7. Editorial Board (US editor), *Springer Seminars in Immunopathology*. 1997-2000

8. ISS-Immunostimulatory DNA sequences. Springer Seminars in Immunopathology. **Raz E**., Editor. Volume **22**, No. 1-2, 2000.

9. Immunostimulatory DNA sequences. **Raz E**., Editor. Springer-Verlag, Berlin, Heidelberg, New York. 2000.

10. Gene vaccination: Theory and practice. **Raz E.**, Editor. Springer, Berlin, Heidelberg, New York. 1998.

11. Plasmid DNA Vaccination: Principles and applications. Springer Seminars in Immunopathology. **Raz E.**, Editor. Volume **19**, No. 12, 1997.

PUBLICATIONS

1. **Raz E** and Michaelli J: Hepatitis B related nephropathies. *Harefuah,* **107:**293-296,1984.

2. **Raz E** and Michaeli J: Adult onset Still's disease. *Harefuah,* **109:**36-39,1985.

3. Mosseri M, Oppenheim D, Kahan C and **Raz E**: Diarrhea and bone marrow depression induced by Nomifenzine Maleate. *Isr J Med Sci,* **23:**906-907,1987.

4. **Raz E**, Benbassat J and Cohen S: Evaluation of diagnostic accuracy in the clinical setting. *Isr J Med Sci* **23:**1177-1189,1987.

5. **Raz E**, Michaeli J and Popovtzer M: Serological markers in a patient with ANA negative SLE and severe renal involvement. *Isr J Med Sci,* **24:**105-108,1988.

6. Morali G and **Raz E:** Wegener's Granulomatosis. *Harefuah,* **116:**604-607,1989.

7. **Raz E**, Michaeli J, Brezis M, Popovtzer M and Shouval D: Improvement of immune complex nephritis associated with hepatitis B surface antigen excess. *Am J Nephrol,* **9:**162-167,1989.

8. **Raz E**, Brezis M, Rosenmann E and Eilat D: Anti-DNA antibodies bind directly to renal antigens and induce proteinuria in the isolated perfused rat kidney. *J. Immunol,* **142:**3076-3082, 1989.

9. Maaravi Y, **Raz E** and Rubinow A: Cerebrovascular accident and myocardial infarction associated with anti-cardiolipin antibodies in a young woman with SLE. *Ann Rheum Dis,* **48:**853-855, 1989.

10. **Raz E**, Ben-Dov I and Rosenmann E: Prolonged pyrexia, a rare manifestation of epithelioid sarcoma. *Chest,* **96:**1191-1193,1989.

11**.** **Raz E** and Shouval D: Improvement of immune complex nephritis associate with hepatitis B surface antigen excess. *Urol Nephrol Dig,* **4**:29-30, 1990.

12. **Raz E**, Kaminsky N and Brezis M: The effect of changes in renal flow and perfusion pressure on albumin excretion in the isolated perfused rat kidney. *Nephron,* **56:**396-399,1990.

13. Maaravi Y and **Raz E**: Cardiac involvement of SLE. *Harefuah,* **120:**227-230,1991.

14. **Raz E** and Bursztyn M: Severe recurrent lupus laryngitis. *Am J Med,* **92**:109-110,1992.

15. Kaminsky N, **Raz E** and Brezis M: Perfusion pressure, proteinuria, and the isolated perfused rat kidney. *Nephron* **59**:673,1991 (letter).

16. Steiner I, Averbouch-Heller L, Abramsky O and **Raz E**: Postpartum idiopathic polymyositis. *Lancet,* **339**:256-257,1992.

17. Mevorach D, Leibowitz G and **Raz** E: Weekly pulse low dose methotrexate induces remission in a patient with Takayasu's arteritis. *Ann Rheum Dis,* **5**:904-905,1992.

18. Mevorach D, **Raz E**, Shalev O and Ben-Chetrit E: Complete heart block and seizure in an adult with systemic lupus erythematosus: A possible pathophysiologic role for anti-SS-A/Ro and anti- SS-B/La autoantibodies. *Arthritis Rheum,* **36**:259-262,1993.

19. **Raz E**, Benbassat H, Davidi T, Shlomai Z and Eilat D: Cross-reaction of anti-DNA autoantibodies with cell surface proteins. *Eur J Immunol,* **23**:383-390,1993.

20. **Raz E,** Watanabe A, Lotz M, Baird SM, Parr TB, Kipps TJ and Carson DA: Systemic immunological effects of cytokine genes injected into mouse skeletal muscle. *Proc Natl Acad Sci USA,* **90**:4523-4527, 1993.

21. **Raz E**, Michaeli J, Rozenmann E, Popovtzer M, Polliack A and Shouval D: Excessive hepatitis B surface antigen production after corticosteroids and development of immunoblastic lymphoma. *Leuk Lymphoma,* **10**:241-244, 1993.

22. Watanabe A, **Raz E**, Kohsaka H, Tighe H, Baird SM, Kipps TJ and Carson DA: Induction of antibodies to a kappa variable region by gene immunization. *J Immunol,* **151**:2871-2876,1993.

23. **Raz E**, Rhodes GH, Baird SM, Carson DA and Felgner PL: Cationic lipids inhibit intradermal genetic vaccination. *Vaccine,* **2**:71-75,1994.

24. Carmeli Y, Mevorach D, Kaminski N and **Raz E**: Regression of Kaposi's sarcoma after intravenous immunoglobulin treatment for polymyositis. *Cancer* **73**:2859-2861,1994.

25. **Raz E,** Carson DA, Parker SE, Parr TB, Abai AM, Aichinger G, Gromkowski SH, Singh M, Lew D, Yankauckas ME, Baird SM and Rhodes GH: Intradermal gene immunization: The possible role of DNA uptake in the induction of cellular immunity to viruses. *Proc Natl Acad Sci USA,* **91**:9519-9523, 1994.

26. Mevorach D, **Raz E** and Steiner I: Evidence for intrathecal synthesis of autoantibodies in SLE with neurological involvement. *Lupus,* **3**:117-121,1994.

27. Giladi E, **Raz E,** Karmeli F, Okon E and Rachmilewitz D: Transforming growth factor gene therapy ameliorate experimental colitis in rats. *Eur J Gastroenterol Hepathol* **7**:341-347,1995.

28. **Raz E**, Dudler J, Lotz M, Baird SM, Berry CC, Eisenberg RA and Carson DA: Modulation of disease activity in murine systemic lupus erythematosus by cytokine gene delivery. *Lupus,* **4**:286-292, 1995

29. **Raz E,** Tighe H, Sato Y, Corr M, Dudler JA, Roman M, Swain SL, Spiegelberg HL and Carson DA: Preferential induction of a Th1 immune response and inhibition of specific IgE antibody formation by plasmid DNA immunization. *Proc Natl Acad Sci USA,* **93**:5141-5145, 1996.

30. Sato Y, Roman M, Tighe H, Lee D, Corr M, Nguyen M-D, Silverman GJ, Lotz M, Carson DA and **Raz E**: Immunostimulatory DNA sequences necessary for effective intradermal gene immunization. *Science,* **273:**352-354,1996.

31. Lee D, Tighe H, Corr M, Roman M, Carson DA, Spiegelberg HL and **Raz E**: Inhibition of IgE antibody formation by plasmid DNA immunization is mediated by both CD4+ and CD8+ T cells. *Int Arch Allergy Immunol*, **113:**227-230,1997.

32. Roman M, Martin-Orozco E, Goodman J, Nguyen MD, Sato Y, Ronaghy A, Kornbluth R, Richman DD, Carson DA and **Raz E:** Immunostimulatory DNA sequences function as Th1 promoting adjuvants. *Nature Medicine,* **3**:849-854,1997.

33. Spiegelberg HL, Orozco EM, Roman M and **Raz E**: DNA immunization: a novel approach to allergen-specific immunotherapy. *Allergy,* **52:**964-970,1997.

34. Carson DA and **Raz E:** Oligonucleotide adjuvants for T helper 1 (Th1) - specific vaccination. *J Exp Med*, **186**:1621-1622, 1997.

35. **Raz E**: Introduction: Gene vaccination, current concepts and future directions. *Springer Sem Immunopathol* **19**:131-137,1997.

36. Roman M, Tighe H, Spiegelberg HL, Broide D and **Raz E**: Gene immunization for allergic disorders. *Springer Sem Immunopathol,* **19:**223-234,1997.

37. Tighe H, Corr MP, Roman M and **Raz E**: Gene vaccination: Plasmid DNA is more than just a blueprint. *Immunol Today,* **19**:89-97, 1998.

38. Kobayashi H., Tighe H and **Raz E**: Immunostimulatory DNA sequences modulate T helper cell response. *Res Immunology,* **149**:63-65,1998.

39. Spiegelberg HL, Tighe H, Roman M, Beck L and **Raz E:** Downregulation of IgE antibody formation by allergen gene immunization. *Allergy Clin Immunopathol Internationale,* **10**:52-58, 1998.

40. Goodman JS, Van Uden JH, Kobayashi H, Broide D and **Raz E**: DNA immuno-therapeutics: New potential treatment modalities for allergic diseases. *Int Arch Allergy Immunol,* **116**:177-178, 1998.

41. **Raz E**: Modulation of Th response by immunostimulatory DNA sequences.
In: Innovative Strategies for Immune Modulation of Host Responses. Proceeding of the 1998 National Immunology Meeting, Ballow M. Editor, Osprey communication Inc. 21-29, 1998.

42. Horner AA, Ronaghy A, Cheng P-M, Nguyen M-D, Cho HJ, Broide D and **Raz E**: Immunostimulatory DNA is a potent mucosal adjuvant. *Cell Immunol,* **190**:77-82, 1998.

43. Spiegelberg HL, Tighe H, Roman M, Broide D and **Raz E**: Inhibition of IgE formation and allergic inflammation by allergen gene immunization and by CpG motif immunostimulatory oligodeoxynucleotides. *Allergy,* **53**:93-97, 1998.

44. Broide D, Schwartz J, Tighe H, Gifford T, Nguyen M-D, Malek S, Van Uden J, Martin-Orozco E, Gelfand EW and **Raz E**: Immunostimulatory DNA sequences inhibit IL-5, eosinophilic inflammation and airway hyper-responsiveness in mice. *J Immunol,* **161**:7054-7062, 1998.

45. Spiegelberg HL, Broide D, Tighe H, Roman M and **Raz E**: Inhibition of allergic inflammation in the lung by plasmid DNA allergen immunization. *Pediatric Pulmonol,* **18**:118-121, 1999.

46. Broide D and **Raz E**: DNA based immunization for asthma. *Int Arch Allergy Immunol* **118:**453-456,1999.

47. Martin-Orozco E, Kobayashi H, Van Uden J, NguyenM-D, Kornbluth R and **Raz E**: Enhancement of antigen-presenting cell surface molecules involved in cognate interaction by immunostimulatory DNA sequences (ISS). *Int Immunol,* **11:**1111-1118, 1999.

48. **Raz E** and Spiegelberg HL: Deviation of the allergic IgE to an IgG response by gene immunotherapy. *Int Rev Immunol*, **18**:271-289, 1999.

49. Van Uden J and **Raz E**: Immunostimulatory DNA and applications to allergic disease. *J Allergy Clin Immunol* **104**: 902-910, 1999.

50. Kobayashi H, Horner A, Takabayashi K, Nguyen M-D, Huang E, Cinman N and **Raz E**: Immunostimulatory DNA pre-priming: A novel approach for prolonged Th-1 biased immunity. *Cell Immunol*, **198**:69-75, 1999.

51. Spiegelberg HL and **Raz E**: DNA vaccines. *Allergy,* **54:**47-48, 1999.

52. Spiegelberg HL and **Raz E**. DNA based immunotherapeutics for allergy. *Arb Paul Ehrlich Inst Bundesamt Sera Impfstoffe Frankf A M*, **93**:283-92, 1999.

53. Horner AA and **Raz E**: Immunostimulatory sequence oligodeoxynucleotide: A novel mucosal adjuvant. *Clin Immunol,* **95**:S19-S29, 2000.

54. Cho HJ, Takabayashi K, Cheng P-M, Nguyen M-D, Corr M, Tuck S and **Raz E**: Immunostimulatory DNA-based vaccines induce cytotoxic lymphocyte activity by a T helper cell-independent mechanism. *Nature Biotech,* **18**:509-514, 2000.

55. Magone MT, Chan CC, Beck L, Whitcup SM and **Raz E**: Systemic or mucosal administration of immunostimulatory DNA inhibits early and late phases of murine allergic conjunctivitis. *Eur J Immunol,* **30**:1841-1850, 2000.

56. Tighe H, Takabayashi K, Schwartz D, Marsden R, Beck L. Corbeil J, Richman DD, Eiden JJ, Spiegelberg HL and **Raz E**: Conjugation of protein to immuno-stimulatory DNA results in a rapid, long-lasting and potent induction of cell- mediated and humoral immunity. *Eur J Immunol,* **30**:1939-1947, 2000.

57. Tighe H, Takabayashi K, Schwartz D, Van Nest G, Tuck S, Eiden JJ, Kagey-Sobotka A, Creticos PS, Lichtenstein LM, Spiegelberg HL and **Raz E**: Conjugation of immunostimulatory DNA to the short ragweed allergen Amb a 1 enhances its immunogenicity and reduces its allergenicity. *J Allergy Clin Immunol,* **106**:124-134, 2000.

58. Horner AA, Nguyen M-D, Ronaghy A, Cinman N, Verbeek S and **Raz E**: DNA- based vaccination reduces the risk of lethal anaphylactic hypersensitivity in mice. *J Allergy Clin Immunol,* **106**:349-356, 2000.

59. Van Uden J and **Raz E**: Introduction to immunostimulatory DNA sequences. *Springer Sem Immunopathol,* **22**:1-9, 2000.

60. Horner AA, Cinman N, Ronaghy A and **Raz E**: Mucosal adjuvanticity of immunostimulatory DNA sequences. *Springer Sem Immunopathol,* **22**:133-146, 2000.

61. Broide D, Cho JY, Miller M, Nayar J, Stachnick G, Castaneda D, Roman M and **Raz E**: Modulation of asthmatic response by immunostimulatory DNA sequences. *Springer Sem Immunopathol,* **22**:117-124, 2000.

62. Kobayashi H, Horner AA, Martin-Orozco H and **Raz E**: Pre-priming: a novel approach to DNA based vaccination and immunomodulation. *Springer Sem Immunopathol,* **22**:85-96, 2000.

63. Horner AA, Van Uden J, Zubeldia JM, Broide D and **Raz E**. DNA-based immunotherapeutics for the treatment of allergic disease. *Immunol Rev,* **179:** 102-118, 2001.

64. Broide, DH, Stachnick G, Castaneda D, Nayar J, Miller M, Cho JY, Roman M, Zubeldia J, Hyashi T and **Raz E**. Systemic administration of immunostimulatory DNA sequences mediate reversible inhibition of Th2 responses in a mouse model of asthma. *J Clin Immunol,* **21:**163-170, 2001.

65. Ayash-Rashkovsky M, Weisman Z, Zlotnikov S, **Raz E**, Bentwich Z and Borkow G. Induction of antigen-specific Th1-biased immune responses by plasmid DNA in schistosoma-infected mice with a preexistent dominant Th2 immune profile. *Biochem Biophys Res Commun,* **282**:1169-1176, 2001.

66. Horner AA, Datta SK, Takabayashi K, Belyakov IM, Hayashi T, Cinman N, Nguyen M-D, Van Uden JH, Berzofsky JA, Richman DD and **Raz E**: Immunostimulatory DNA-based vaccines elicit multifaceted immune responses against HIV at systemic and mucosal sites. *J Immunol,* **167**:1584-1591, 2001.

67. Uchijima M, **Raz E,** Carson DA, Nagata T and Koide Y. Identification of immunostimulatory DNA-induced genes by suppression subtractive hybridization. *Biochem Biophys Res Commun,* **286**:688-691, 2001.

68. Horner AA, Widhopf GF, Burger JA, Takabaysahi K, Cinman N, Ronaghy A, Spiegelberg HL and **Raz E**. Immunstimulatory DNA inhibits IL-4-dependent IgE synthesis by human B cells. *J Allergy Clin Immunol* **108**:417-423, 2001.

69. Zubeldia JM and **Raz E**. Tratamiento de las enfermedades alergicas con secuencias inmunomodulatoras de ADN. *Allergol Immunol Clin,* **16**:13-22, 2001 (in Spanish).

70. Hayashi T, Rao SP, Takabayashi K, Van Uden JH, Kornbluth RS, Baird SM, Taylor MW, Carson DA, Catanzaro A and **Raz E**: Enhancement of innate immunity against *Mycobacterium avium* infection by immunostimulatory DNA is mediated by indoleamine 2,3-dioxygenase. *Infect Immunity,* **69**:6156-6164, 2001.

71. Cho JY, Miller M, Baek KJ, Castaneda D, Nayar J, Roman M, **Raz E** and Broide DH. Immunostimulatory DNA sequences inhibit respiratory syncytial viral load, airway inflammation, and mucus secretion. *J Allergy Clin Immunol*, **108**:697-702, 2001.

72. Broide DH, Stachnick G, Castaneda D, Nayar J, Miller M, Cho J, Rodriquez M, Roman M and **Raz E**. Immunostimulaotry DNA mediates inhibition of eosinophilic inflammation and airway hyperreactivity independent of natural killer cells in vivo. *J Allergy Clin Immunol,* **108**:759-763, 2001.

73. Van Uden JH, Tran CH, Carson DA and **Raz E**: Type 1 interferon is required to mount an adaptive response to immunostimulatory DNA. *Eur J Immunol,* **31:**3281-3290, 2001.

74. Ronaghy A, Prakken BJ, Takabayashi K, Firestein GS, Boyle D, Zvailfler NJ, Roord STA, Albani S, Carson DA and **Raz E:** Immunostimulatory DNA sequences influence the course of adjuvant arthritis**.** *J Immunol,* **168**:51-56, 2002.

75. Horner AA, Takabayashi K, Zubeldia JM and **Raz E**. Immunositmulatory DNA-based therapeutics for experimental and clinical allergy. *Allergy,* **57**:24-29, 2002.

76. Spiegelberg HL and **Raz E.** DNA-based approaches for the treatment of allergies. *Cur Opin Molecular Therapeutics,* **4**:64-71, 2002.

77. Rachmilewitz D, Karmeli F, Takabayashi K, Hayashi T, Leider-Trejo L, Lee J, Leoni LM and **Raz E**: Immunostimulatory DNA ameliorates experimental and spontaneous murine colitis. *Gastroenterology,* **122**:1428-1441, 2002.

78. Cho HJ, Hayashi T, Datta SK, Takabayashi K, Van Uden JH, Horner, A, Corr M and **Raz E**: IFN□ □ □ promote priming o f antigen-specific CD8 and CD4 T lymphocytes by immunostimulatory DNA-based vaccines. *J Immunol,* **168**:4907-4913, 2002.

79. Miller M, Cho J-Y, Baek K-J, Castaneda D, Nayar J, Rodriguez M, Roman M, **Raz E** and Broide DH. Plasmid DNA Encoding the Respiratory Syncytial Virus G protein protects against RSV-induced airway hyperresponsiveness. *Vaccine* **20**:3023-3033, 2002.

80. Spiegelberg HL, Takabayashi K, Beck L and **Raz E**. DNA-based vaccines for allergic disease. *Expert Rev Vaccines,* **2**:169-177, 2002.

82. Joseph A, Louria-Hayon I, Plis-Finarow A, Zeira E, Zakay-Rones Z, **Raz E,** Hayashi T, Takabayashi K, Bernhotlz Y and Kedar E. Liposomal immunostimulatory DNA sequence (ISS-ODN): an efficient parenteral and mucosal adjuvant for influenza and hepatitis B vaccines. *Vaccine,* **20**:3342-3354,2002.

83. Horner AA, Takabayashi K, Beck L, Sharma B, Zubeldia J, Baird S, Tuck S, Libet L, Spiegelberg HL, Liu F-T and **Raz E**. Optimized conjugation ratios lead to allergen immunostimulatory oligodeoxynucleotide conjugates with retained immuno-genicity and minimal anaphylactogenicity. *J Allergy Clin Immunol*, **110**:413-420, 2002.

84. Horner AA, and **Raz E**. Immunostimulatory sequence oligodeoxynucleotide-based vaccination and immunomodulation: Two unique but complementary strategies for the treatment of allergic diseases *J Allergy Clin Immunol*, **110**:706-712,2002.

85. Spiegelberg HL, Horner AA, Takabayashi K and **Raz E**. Allergen-immunostimulatory oligodeoxynucleotide conjugate: A novel allergoid for immunotherapy. *Curr Opin Allergy Clin Immunol*, **2**:547-551, 2002.

86. Datta SK, Redecke V, Prilliman KR, Takabayashi K, Corr M, Tallant T, DiDonato J, Dziarski R, Akira S, Schoenberger SP and **Raz E**. A subset of toll-like receptor ligands induces cross-presentation by bone marrow derived dendritic cells. *J Immunol,* **170**:4102-4110, 2003.

87. Lee J, Chuang T-H, Redecke V, She L, Pitha PM, Carson DA, **Raz E**, and Cottam HB. Molecular basis for the immunostimulatory activity of guanine nucleoside analogs; Activation of Toll-like receptor 7. *Proc Nat Acad Sci USA* **100**:6646-6651, 2003.

88. Ikeda RK, Nayar J, Cho JY, Miller M, Rodriguez M, **Raz E** and Broide DH. Resolution of airway inflammation following ovalbumin inhalation: Comparison of ISS DNA and corticosteroids. *Am J Respir Cell Mol Biol,* **28**:655-663,2003.

89. Matricardi PM, Bjorksten B, Bonini S, Bousquet J, Djukanovic R, Dreborg S, Gereda J, Malling HJ, Popov T, **Raz E**, Renz H and Wold A for the EAACI Task Force 7. Microbial products in allergy prevention and therapy. *Allergy,* **58**:461-71, 2003.

90. Ikeda RK, Miller M, Nayar J, Walker L, Cho JY, McElwin K, McElwin S, **Raz E** and Broide DH. Accumulation of peribronchial mast cells in a mouse model of ovalbumin allergen induced chronic airway inflammation: Modulation by immunostimulatory DNA sequences. *J Immunol,* **171**:4860-4867, 2003.

91. Horner AA and **Raz E**. Do microbes influence the pathogenesis of allergic diseases? Building the case for Toll-like receptor ligands. *Curr Opin Immunol* 15:614-619, 2003.

92. Datta SK, Takabayashi K and **Raz E.** The therapeutic potential of antigen-oligonucleotide conjugates. *Ann NY Acad Sci* **1002**:105-111, 2003.

93. Rachmilewitz D, Katakura K, Karmeli F, Hayashi T, Reinus C, Rudensky B, Akira S, Lee J, Takeda K, Takabayashi K and **Raz E**. Toll-like receptor 9 signaling mediates the anti-Inflammatory effects of probiotics on murine experimental colitis. *Gastroenterology,* **126**:520-528, 2004.

94. Redecke V, Häcker H, Datta SK, Fermin A, Pitha PM, Broide DH, and **Raz E.** Cutting edge: activation of Toll-like receptor 2 induces a Th2 immune response and promotes experimental asthma. *J Immunol* (Cutting Edge) **172**:2739-43, 2004.

95. Datta SK, Cho HJ, Takabayashi K, Horner AA and **Raz E**. Antigen-immunostimulatory oligunucleotide conjugates (AIC): Mechanisms and Applications. *Immunological Rev,* **199**:217-226, 2004.

96. Cho, JY, Miller M, Won Han K-J, Nayar J, Rodriguez M, Lee S-Y, McElwain K, McElwain S, **Raz E**, and Broide DH. Immunostimulatory DNA inhibits TGF-b expression and airway remodeling. *Am J Resp Cell Mol Biol*, **30**:651-656,2004.

97. Hayashi T, Beck L, Rossetto C, Gong X, Takikawa O, Takabayashi K, Broide B, Carson DA and **Raz E**. Inhibition of experimental asthma by indoleamine 2,3-dioxygenase. *J Clin Invest,* **114**:270-279, 2004.

98. Wu CC, Lee J, **Raz E**, Corr M, Carson DA. Necessity of oligonucleotide aggregation for TLR9 activation. *J Biol Chem,* **279:**33071-33078, 2004.

99. Rhee C-S, Libet L, Chisholm D, Takabayashi K, Baird S, Bigby T, Lee C-H, Horner AA and **Raz E**. Allergen independent immunostimulatory sequence oligo-deoxynucleotide therapy attenuates experimental allergic rhinitis. *Immunology,* **113**:106-113, 2004.

100. Fannuchi MV, Schelegle ES, Baker GL, Evans MJ, McDonald RJ, Gershwin LJ, **Raz E,** Hyde DM, Plopper CG and Miller LA. Immunostimulatory oligo-nucleotides attenuate airways remodeling in allergic monkeys. *Am J Respir Crit Care Med,* **170**:1153-1157, 2004.

101. Horner AA, Redecke V and **Raz E.** Toll-like receptor ligands: Hygiene, atopy and therapeutic implications. *Curr Opin Allergy Clin Immunol,* **4**:555-561, 2004.

102. Youn CJ, Miller M, Baek KJ K, Han JW, Nayar N, Lee SY, McElwain K, McElwain S, **Raz E**, and Broide DH. Immunostimulatory DNA reverses established allergen-induced airway collagen deposition and remodeling. *J Immunology,* **173**:7556-7564, 2004.

103. Datta SK and **Raz E**. Induction of antigen cross-presentation by Toll-like receptors. *Springer Sem Immunopathology,* **26**:247-255, 2005.

104. Katakura K, Lee J, Rachmilewitz D, Li G, Eckmann L and **Raz E**. TLR9-induced type-1 IFN protects mice from experimental colitis. *J Clin Invest,* **115**:695-702, 2005.

105. Hayashi T, Gong X, Rossetto C, Spiegelberg H, Takabayashi K, Broide D, and **Raz E.** Induction and inhibition of the Th2 phenotype spread: implications for childhood asthma. *J Immunology*, **174**:5864-5873, 2005.

106. Wang JP, Hayashi T, Datta SK, Kornbluth RS, **Raz E**, Guiney DG. CpG oligonucleotides partially inhibit growth of Mycobacterium tuberculosis, but not Salmonella or Listeria, in human monocyte-derived macrophages. *FEMS Immunol Med Microbiol,* **45**:303-10, 2005.

107. Hayahsi T and **Raz E**. Immunomodulation of the allergic response by TLR9 agonists (in Japanese). *Allergy: From the nose to the lung,* **3**:10-18, 2005.

108. Kirkland TN, **Raz E**, Datta SK. Molecular and cellular mechanisms of protective immunity to coccidioidomycosis. *Vaccine,* **24**:495-500, 2006.

109. Hacker H, Redecke V, Blagoev B, Kratchmarova I, Hsu LC, Wang GG, Kamps MP, **Raz E**, Wagner H, Hacker G, Mann M, Karin M. Specificity in Toll-like receptor signaling through distinct effector functions of TRAF3 and TRAF6. *Nature,* **439**:204-207, 2006.

110. Lee J-D, Wu CC, Lee KJ, Chuang TH, Katakura K, Liu YT, Chan M, Tawatao R, Chung M, Shen C, Cottam HB, Lai MMC, **Raz E** and Carson DA. Activation of anti-hepatitis C virus responses via Toll-like receptor 7. *Proc Natl Acas Sci USA,* **103**:1828-1833, 2006.

111. Cho JY, Miller M, McElwain K, McElwain S, Shim JY, **Raz E**, Broide DH. Remodeling associated expression of matrix metalloproteinase 9 but not tissue inhibitor of metalloproteinase 1 in airway epithelium: Modulation by immunostimulatory DNA. *J Allergy Clin Immunol,* **117**:618-25, 2006.

112. Lee SY, Cho JY, Miller M, McElwain K, McElwain S, Sriramarao P, **Raz E**, Broide DH. Immunostimulatory DNA inhibits allergen-induced peribronchial angiogenesis in mice**.** *J Allergy Clin Immunol,* **117**:597-603, 2006.

113. Rachmilewitz D, Karmeli F, Lee J-D, Takabayshi K and **Raz E**. Immunostimulatory oligonucleotides inhibit pro-inflammatory cytokine production in ulcerative colitis. *Inflammatory Bowel Disease,* **12**:339-345, 2006.

114. Mo JH, Park SW, Rhee CS, Takabayashi K, Lee SS, Quan SH, Kim IS, Min IY, **Raz E**, Lee CH. Suppression of allergic response by CpG motif oligodeoxynucleotide-house-dust mite conjugate in animal model of allergic rhinitis. *Am Journal Rhinol,* **20**:212-218, 2006.

115. Datta SK, Okamoto S, Hayashi T, Shin S, Fermin A, Fierer J and **Raz E**. Irradiated Listeria: a vaccination strategy for induction of protective T cell immunity. *Immunity* **25**:143-152, 2006.

116. Lee J, Rachmilewitz D and **Raz E.** The homeostatic effects of TLR9 signaling in experimental colitis. *Ann NY Acad Sci,* **1072**:351-355, 2006.

117. Hayashi T and **Raz E**. TLR9-based immunotherapy for allergic disease. *Am Journal Med,* **119**:897(e1)-897(e6), 2006.

118. Lee J-D, Katakura K, Kim H-S, Lee H-K, Lee P, Eckmann L, Ben-Neriah Y, and **Raz E**. Maintenance of colonic homeostasis via distinctive apical TLR9 signaling in intestinal epithelial cells. *Nature Cell Biology,* **8**:1327-1336, 2006.

119. **Raz E**. Regulation of organ-specific innate immunity. *Nat Immunol*ogy, **8**:3-4, 2007.

120. Lee J, Mo JH, Shen C, Rucker AN, and **Raz E**. TLR signaling in intestinal epithelial cells contributes to colonic homoeostasis. *Curr. Opin Gastroenterology*, **23**:27-31, 2007.

121. Abe K, Nguyen KP, Fine SD, Mo JH, Shen C, Shenouda S, Corr M, Jung S, Lee J, Eckmann L and **Raz E**. Conventional dendritic cells regulate the outcome of colonic inflammation independently of T cells. *Proc Natl Acad Sci USA,* 1**04**:17022-17027, 2007.

122. Hayashi T, Mo J-H, Gong X, Rossetto R, Jang A, Beck L, Elliott G, Ikufareva I, Abagyan R, Broide D, Lee J, and **Raz E**. 3-Hydroxyanthranilic acid, inhibits PDK1 activation and suppressed experimental asthma by inducing T cell apoptosis. *Proc Natl Acad Sci USA,* **104**:18619-18624, 2007.

123. Lee J, Gonzalez-Navidad J, and **Raz E**. "The Polarizing-Tolerizing" mechanism of intestinal epithelium: Its relevance to colonic homeostasis. *Seminars Immunopathology,* **30**:3-9, 2008.

124. Lee J, Abe K, Katakura K, Gonzalez-Navajas J, **Raz E**. The protective effects of type-1 interferon in models of intestinal inflammation. *Adv Exp Med,* **633**:1-6, 2009.

125. Chen Y, Khanna S, Goodyear CS, Park YB, **Raz E**, Thiel S, Grönwall C, Vas J, Boyle DL, Corr M, Kono DH, Silverman GJ. Regulation of dendritic cells and macrophages by an anti-apoptotic cell natural antibody that suppresses TLR responses and inhibits inflammatory arthritis. *J Immunol0gy,* **183**:1346-59, 2009

126. **Raz E**. Mucosal immunity: Aliment and ailments. *Mucosal Immunol*ogy, **3**: 4-7, 2010.

127. González-Navajas JM, Fine D, Law J, Datta SK. Nguyen KP, Yu M, Corr M, Katakura K, Eckman L, Lee J, and **Raz E**. TLR4 signaling in effector CD4+ T Cells regulates TCR activation and experimental colitis *J Clin Invest,* **120**:570-581, 2010.

128. Lee SH, Hu L, Gonzalez-Navajas J, Seo GS, Shen C, Brick J, Herdman S, Varki N, Corr M, Lee J, and **Raz E**. ERK activation drives intestinal tumorigenesis in $APC^{min/+}$ mice. *Nature Medicine*, **16**:665-670, 2010.

129. Datta SK, Sabet Nguyen KP, Baldez PA, Gonzalez-Navajas JM, Islam S, Mihajlov I, Fierer J, Insel PA, Webster NJ, Guiney D and **Raz E**. Mucosal adjuvant activity of cholera toxin requires Th17 cells and protect against inhalation anthrax, *Proc Natl Acad Sci USA,* **107**:10638-10643, 2010.

130. Gonzalez-Navajas JM, Law J, Nguyen KP, Bhargava M, Corr MP, Varki N, Eckmann L, Hoffman HM, Lee J and **Raz E**. Interleukin-1 receptor signaling regulates DUBA expression and facilitates Toll-like receptor 9-driven anti-inflammatory cytokine production *J Exp Med,* **207**:2799-807, 2010.

131. Mo JH, Chung YJ, Hayashi T, Lee J, **Raz E**. The role of plasmacytoid and myeloid dendritic dells in induction of asthma in a mouse model and the effect of a TLR9 agonist on dendritic cells, *Allergy Asthma Immunol Res,* **3**:199-204, 2011.

132. Gonzalez-Navajas JM, Lee J, David M and **Raz E**. Immunomodulatory functions of type 1 IFN, *Nat Rev Immunol*, 1**2**:125-135, 2012.

133. Lee J, Kim H, Kim J CK, Xavier R and **Raz E**. Autophagy suppresses interleukin-1β (IL-1β) signaling by activation of p62 degradation via lysosomal and proteasomal pathways, *J Biol Chem,* **287**:4033-4040, 2012.

134. Li X, Murray F, Goldstone J, Chen J, Koide N, Bertin S, Fu G, Weistein LS, Chen M, Corr M, Eckmann L, Insel PA and **Raz E**. Divergent requirement for Gαs and cAMP in the differentiation and inflammatory profile of distinct mouse Th subsets, *J Clin Invest,* **122**:963-973, 2012.

135. Lee J, Kim J CK, Lee SU, Quinley C, Kim H, Herdman S, Corr M and **Raz E**. Signal transducer and activator of transcription 3 (STAT3) protein suppresses adenoma-to-carcinoma transition in Apcmin/+ mice via regulation of Snail-1 (SNAI) protein stability, *J Biol Chem,* **287**:18182-18189, 2012.

136. Lee SE, LI X, Kim J, Lee J, Gonzalez-Navajas JM, Rhee JH and **Raz E**. Type 1 IFN is required for maintaining FoxP3 expression and Treg function during T cell-mediated colitis, *Gastroenterology,* **143**:145-154, 2012.

137. Zonneveld-Huijssoon E, van Wijk F, Roord S, Delemarre E, Meerding J, de Jager W, Klein M, **Raz E**, Albani S, Kuis W, Boes M, Prakken BJ. TLR9 agonist CpG enhances protective nasal HSP60 peptide vaccine efficacy in experimental autoimmune arthritis. *Ann Rheum Dis*ease, **71**:1706-15, 2012.

138. de Jong PR, Mo JH, Lee J and **Raz E.** Stat3: An anti-metastatic factor in colorectal cancer? *Cancers* **6:**1394-1407, 2014.

139. De Jong PR, Takahashi N, Harris A, Bertin S, Lee J, Jeffries J, Jung M, Duong J, Triano AI, Lee J, Niv Y, Herdman DS, Taniguchi K, Kim C-W, Dong H, Eckmann L, Stanford SM, Bottini N, Corr M and **Raz E.** Ion channel TRPV1-dependent activation of PTP1B suppresses EGFR-associated intestinal tumorigenesis. *J Clin Invest*, **124**:3793-3806, 2014.

140. González-Navajas JM, Corr MP and **Raz E.** The immediate protective response to microbial challenge. *Eur J Immunol*, **44**:2536-2549, 2014.

141. Bertin S, Aoki-Nonaka Y, de Jong PR, Nohara LL, Xu, H, Stanwood SR, Srikanth S, Lee J, To K, Abramson L, Yu T, Han T, Touma R, Li X, González-Navajas JM, Herdman S, Corr M, Fu G, Dong H, Gwack Y, Franco A, Jefferies WA, and **Raz E.** The ion channel TRPV1 regulates the activation and the pro-inflammatory properties of CD4 T cells. *Nature Immunology***, 11:**1055-1063, 2014.

142. Bertin S, de Jong PR, Jefferies WA and **Raz E**. Novel immune function for the TRPV1 channel in T lymphocytes, *Channels*, **8:**479-480, 2014.

143. Bertin S, Lozano-Ruiz B, Bachiller V, García-Martínez I, Herdman S, Zapater P, Francés R, Such PJ, Lee J, **Raz E**, and González-Navajas JM. Dual Specificity Phosphatase 6 (DUSP6) protects from T cell-dependent colitis in mice by suppressing ERK1/2 activation and Th1 differentiation. *Mucosal Immunology,* **8**:505-515, 2015.

144. Lee J, Kim TH, Murray F, Li X, Choi S, Broide DH, Corr M, Lee J, Webster NJG, Insel PA, and **Raz E,** Cyclic AMP concentrations in dendritic cells induce and regulate Th2 immunity. *Proc of the Nat Acad Sci USA*, **112**:1529-1534, 2015.

145. De Jong PR, Takahashi N, Peiris P, Bertin S, Lee J, Panigua A, Herdman S, Corr C, Ashley Blackshaw L and **Raz E**. TRPM8+ mucosal fibers regulate colitogenic responses by innate immune cells through CGRP. *Mucosal Immunology,* **8**:491-504, 2015.

146. De Jong PR, Bertin S and **Raz E**. TRPV1: Turning up the heat on intestinal tumorigenesis. *Molecular and Cellular Oncology* http://dx.doi.org/10.4161/23723556, 2014.975619, 2015.

147. Taniguchi K, Wu LW, Grivennikov SI, de Jong PR, Lian I, Yu FX, Wang K, Ho SB, Boland BS, Chang JT, Sandborn WJ, Hardiman G, **Raz E**, Maehara Y, Yoshimura A, Zucman-Rossi J, Guan KL, Karin M. A gp130-Src-YAP module links inflammation to epithelial regeneration. *Nature,* **519**:57-62, 2015.

148. Bertin S, **Raz E**. A novel role for the TRPV1 ion channel in CD4 T cell activation. *Med Science* (Paris), **31**:135-6, 2015.

149. Dann SM, Manthey CF, Le C, Miyamoto Y, Gima L, Abrahim A, Cao AT, Hanson EM, Kolls JK, **Raz E**, Cong Y, Eckmann L. IL-17A promotes protective IgA responses and expression of other potential effectors against the lumen-dwelling enteric parasite Giardia. *Experimental Parasitology*, **156**:68-78, 2015.

150. Samivel R, Kim DW, Son HR, Rhee YH, Kim EH, Kim JH, Bae JS, Chung YJ1,2, Chung PS, **Raz E,** Mo JH. The Role of TRPV1 in the CD4+ T cell-mediated inflammatory response of allergic rhinitis**.** *Oncotarget,* **7**:148-60, 2016.

151. de Jong PR, Taniguchi K, Harris A, Bertin S, Takahashi N, Duong J, Campos AD, Powis G, Corr M, Karin M and **Raz E**. ERK5 signaling rescues intestinal epithelial turnover and tumor cell proliferation upon ERK1/2 abrogation. *Nature Communication,* **7**:11551-15, 2016.

152. Bertin S and **Raz E**. Transient Receptor Potential (TRP) channels in T cells. *Seminars in Immunopathology*, **38**:309-19, 2016.

153. Bertin S, Aoki-Nonaka Y, Lee J, de Jong PR, Kim P, Han T, Yu T, To K, Takahashi N, Boland BS, Chang JT, Ho SB, Herdman S, Corr M, Franco A, Sharma S, Dong H, Akopian AN and **Raz E**. TRPA1 ion channel is expressed in CD4+ T cells and restrains T cell mediated colitis through inhibition of TRPV1, *Gut* (pii: gutjnl-2015-310710), 2016.

154. Taniguchi K, Moroishi T, de Jong PR, Krawczyk M, Moyo Grebbin B, Luo H, Xu RH, Golob-Schwarzl N, Schweiger, Wang K, Di Caro G, Feng Y, Fearon E, **Raz E**, Kenner L, Farin HF Kun-Liang Guan, Haybaeck J, Datz C, Zhang K and Karin M. A YAP-IL6ST autoregulatory loop activated on APC loss controls colonic tumorigenesis. *Proc of the Nat Acad Sci USA,* 2017 (in press).

CHAPTERS IN BOOKS

1. Spiegelberg HL and **Raz E**: Inhibition of IgE formation by allergen gene vaccination. In *Progress in Allergy and Clinical Immunology,* Vol. 4, Oehling AK, Lopez JGH Eds, Hogrefe and Huber Publishers, pp. 334-338, 1997.

2. **Raz E**: Immune deviation of the allergic response by DNA immunization. In *Asthma-and Allergic Diseases*. Eds: Marone G, Austen FK, Holgate ST, Kay BA, Lichtenstein LM. Academic Press, pp. 417-428, 1998.

3. **Raz E**: Gene vaccination: Current concepts and future directions. 3. In *Gene Vaccination: Theory and Practice*. Raz E Ed. Springer-Verlag, Berlin, Heidelberg, New York, pp. 1-8, 1998.

4. Roman M, Tighe H, Spiegelberg HL, Broide D and **Raz E**: Gene immunization for allergic disorders. In *Gene Vaccination: Theory and Practice*. Raz E Ed. Springer. Berlin, Heidelberg, New York, pp. 121-130, 1998.

5. Roman M, Tighe H, Spiegelberg HL, Broide D and **Raz E**: Genetic immunization for allergy immunotherapy. In *Methods in Molecular Medicine*. Lowrie D and Whalen R Eds. Humana Press Inc. Totowa, NJ, pp. 451-472, 1999.

6. Van Uden J and **Raz E**: Immunostimulatory DNA sequences: In An Overview. *Methods in Molecular Medicine*. Eds: Lowrie D and Whalen R. Humana Press Inc, pp. 145-168, 1999.

7. Horner AA and **Raz E**: Immunostimulatory-sequences DNA is an effective mucosal adjuvant. In *Immunobiology of Bacterial CpG DNA*. Wagner H Ed. Springer, pp. 185-198, 2000.

8. Van Uden J and **Raz E**: Introduction to immunostimulatory DNA sequences. In *Immunostimulatory DNA Sequences*. Raz E Ed. Springer-Verlag, Berlin, Heidelberg, New York, pp. 1-10, 2000.

9. Lee DJ, Takabayashi K, Corr MP and **Raz E**: Principles of genetic immunization. *The skin and Gene Therapy*. Eds: Hengge RU and Platzer BV. Springer-Verlag, Berlin, Heidelberg New York, pp. 177-200, 2000.

10. Kobayshi H, Horner AA, Martin-Orozco H and **Raz E**: Pre-priming: A novel approach to DNA based vaccination and immunomodulation. *Immunostimulatory DNA Sequences*. Raz E Ed. Springer-Verlag, Berlin, Heidelberg, New York, pp. 85-96, 2000.

11. Broide D, Cho JY, Nayar J, Stachnick G, Castaneda D, Roman M and **Raz E**: Modulatiom of asthmatic response by immunostimulatory DNA sequences. *Immunostimulatory DNA Sequences*. Raz E Ed. Springer-Verlag, Berlin, Heidelberg, New York, pp. 117-124, 2000.

12. Horner AA, Cinman N, Ronaghy A and **Raz E**: Mucosal adjuvanticity of immunostimulatory DNA. *Immunostimulatory DNA Sequences*. Raz E Ed. Springer-Verlag, Berlin, Heidelberg, New York, pp. 133-146, 2000.

13. Corr MP, Lee DJ and **Raz E**: DNA vaccines: Fundamentals and practice. *Methods in Microbiology, Vol 32*, *Immunology of Infection* (*2nd edition*). Eds: Kaufmann SHE and Kabelitz D. Academic Press, London, UK, pp 527-550, 2002.

14. **Raz E**: Immunostimulatory DNA: An overview. *Microbial DNA and Host Immunity*. Raz E Ed. Humana Press, Totowa, NJ, pp 3-8, 2002.

15. Cho HL, Datta S and **Raz E:** Cross-priming of CD8+ T cells by immunostimulatory DNA. *Microbial and Host Immunity*. Raz E Ed. Humana Press, Totowa, NJ, pp 137-149, 2002.

16. Rachmilewitz D, Karmeli F. Leider-Trejo J, Takabayashi K, Hayashi T and **Raz E**. Effects of Immunostimulatory DNA oligonucleotides on experimental colitis. *Microbial DNA and Host Immunity*. Raz E Ed. Humana Press, Totowa, NJ, pp 373-381, 2002.

17. Datta S, Horner AA, Takabayashi K and **Raz E**. Immunostimulatory DNA-based immunization: Hope for an HIV vaccine? *Microbial DNA and Host Immunity*. Raz E Ed. Humana Press, Totowa, NJ, pp 239-254, 2002.

18. Horner AA and **Raz E**. DNA-based immunotherapeutics for allergic disease. *Microbial DNA and Host Immunity*. Raz E Ed. Humana Press, Totowa, NJ, pp 279-287, 2002.

19. Horner AA and **Raz E**. Gene vaccination and immunostimulatory DNA based therapies for the treatment of allergic disease. *Current Therapy in Allergy, Immunology and Rheumatology*. 6th Edition. Eds: Lichtenstein LM, Busse WW, and Geha RS. Mosby, Philadelphia, PA, Inc, pp 428-431, 2003.

20. Broide D and **Raz E**. DNA based immunotherapy for asthma. *Lung Biology in Health and Disease*, Executive Ed: Lenfant C. *Therapeutic Targets of Airway Inflammation*. Eds: Eissa NT and Huston DP. Marcel Dekker Inc, Vol 177, pp 839-865, 2003.

21. Lee J, Rachmilewitz D and **Raz E**. Diverse effects of TLR signaling on intestinal inflammation. *Defense mechanisms of the innate system: Influence of microbes*. Old Herborn University Seminar Monograph. Eds: Heidt P, Bienenstock J, Midtvedt T, Rusch V and van der Waaij D, Volume 19, pp 89-92, 2006.

22. Lee J, Abe K. Katakura K, Gonzalez-Navaja J and **Raz E**. The protective effects of type-1 IFN in models of intestinal inflammation. *Crossroad between innate and adaptive immunity II*. Springer. Eds: Shoenberger SP, Katsikis PD and Pulindran B, pp 1-6, 2008.

23. Hayashi T and **Raz E**. Immunostimulatory (CpG) DNA-based therapies for the treatment of allergic disease. *Allergic Frontiers: Future perspectives)*. Eds: Pawankare R, Holgate S and Rosenwaser L., Volume 6, pp 65-78, 2010.

24. Lee J and **Raz E**. Autophagy restricts interleukin 1b signaling via regulation of P62 stability, *Autophagy: Cancer, Inflammation, Immunity and Infection*. Editor: Hayat MA, Elsevier Publishing Company (in-press 2015).

25. Wang S, Tao A and **Raz E**. Introduction to Translational Bioinformatics: Allergy Bioinformatics (Volume 8), Ailin T and **Raz E.,** Editors, Springer Dordrecht Heidelberg New York London, pp 1-13, 2015.

ABSTRACTS

1. **Raz E**, Brezis M and Eilat D: Antibodies from patients with lupus nephritis bind directly to glometular antigens and induce proteinuria. *Tenth International Congress of Nephrology*, London, p.323, 1987.

2. **Raz E**, Greenfeld Z and Naparstak Y: Oral heparin reduces albumin excretion in proteinuric rats. *Clin Res* **37:**499A, 1989.

3. **Raz E**, Greenfeld Z and Naparstak Y: Oral heparin reduces albumin excretion in proteinuric rats. *Clin Res* **37:**499A, 1989.

4. Eilat D and **Raz E**: The role of anti-DNA antibodies in lupus nephritis. *Postgrad Med J* p.341, 1989.

5. **Raz E**, Watanabe A, Eisenberg RA and Carson DA: Cytokine gene therapy for murine lupus. *Arthritis Rheum* **35**: S51, 1992.

6. Kipps TJ, Vicario D, Miyanohara A, D'Agostino H, Parr T, **Raz E** and Carson DA: Direct in vivo transduction of solid tumor with modified HSV-1. Potential for gene therapy of human malignancy. *Gene Therapy*. Cold Spring Harbor Laboratory, 1992.

7. Wicks IP, **Raz E**, Lotz M, Baird SM and Carson DA: Effect of intramuscular administration of cytokine gene TGF-□ and IL-10 on experimental arthritis in rats. *J Cell Biochem* **17B**:155, 1993.

8. **Raz E**, Abai MA, Carson DA, Parker ES and Rhodes HG: Intradermal gene immunization. *Modern Approach to New Vaccine*s, Cold Spring Harbor Laboratory, 60, 1993.

9. **Raz E**. Lotz M, Baird SM, Eisenberg RA and Carson DA: Modulation of murine lupus by cytokine gene delivery. *Arthritis Rheum* **36**:S91, 1993.

10. Giladi E, **Raz E**, Karmeli F, Okon E and Rachmilewitz D: Transforming growth factor beta gene therapy ameliorate experimental colitis. *Gastroenterology* **106**: p-A688, 1994.

11. **Raz E**, Rhodes GH, Parker SE, Baird SM and Carson DA: Intradermal gene delivery induces systemic immunity. *Cancer Gene Therapy* **1**: 17, 1994.

12. Dudler J, **Raz E** and Lotz M: Inhibition of IL-1 effects by a soluble IL-1 receptor-IgG fusion protein. *Arthritis Rheum* **37**: S340, 1994.

13. **Raz E** and Carson DA: Potential role of immunostimulatory DNA sequences in genetic immunization and autoimmunity. *Arthritis Rheum* **39**: S129, 1996.

14. Broide D, Martin-Orozco E, Roman M, Carson DA and **Raz E**: Intradermal gene vaccination down-regulates both arms of the allergic response. *J Allergy Clin Immunol* **99:** S129, 1997.

15. Roman M, Martin-Orozco E, Carson DA and **Raz E**: Immunostimulatory DNA sequences are a Th1 promoting adjuvant. *J Allergy Clin Immunol* **99:** S365, 1997.

16. Lee D, Carson DA, **E Raz** and Corr M: Induction of antigen specific CD1-restricted immune response by DNA immunization. *J Allergy Clin Immunol* **99:** S297, 1997.

17. Goodman J and Raz E. Circling back to gene vaccine. *Gastoenterology* **113**: 1812-1813, 1997.

18. Cheng P-M, Neguyen D-M, Caroll J, Van Uden J and **Raz E**. Immunostimulatory DNA sequences as adjuvants for therapeutic cancer vaccines. *FASEB J* **12:** LB83, 1998.

19. Martin-Orozco E, Kobayashi H, Van Uden J and **Raz E**. Expression of surface molecules on murine B cell after stimulation with immunostimulatory DNA sequences (ISS) is cytokine independent. *FASEB J* **12:** LB84, 1998.

26. Van Uden J, Broide D, Tighe H, Gifford T, Nguyen D-M, Malek S and **Raz E**. Immunostimulatory DNA sequences inhibit allergic eosinophilic inflammation in mice. *FASEB J* **12:** LB85, 1998.

27. Kobayashi H, Martin-Orozco E, Van Uden J, Kornbluth R and **Raz E**. Activation of murine macrophages by immunostimulatory DNA sequences. *FASEB J* **12:** LB82, 1998.

28. Kobayashi H, Martin-Orozco E, Van Uden J, Kornbluth R and **Raz E**. Activation of APC by ISS-DNAs. *Arthritis Rheum* **41**: 6S, 1998.

29. **Raz E**. Modulation of the T helper response by immunostimulatory DNA sequences. *J Gene Med* **1**: 25, 1998.

30. Tighe H, Takabayashi K, Schwartz D, Malo M, Beck L, Zhu J, Hall D, Mardsen R, Spiegelberg H and **Raz E**. Coupling CpG motif immunostimulatory DNA to ragweed allergen Amb A 1 induces a Th1 response to allergen. *J Allergy Clin Immunol* **103:** S48, 1999.

31. Horner A, Nguyen M-D and **Raz E**. Genetic vaccination protects against development of Th2 mediated immune responses and anaphylactic hypersensitivity. *J Allergy Clin Immunol* **103:** S50, 1999.

32. Spiegelberg H and **Raz E**. DNA vaccines. *Allergy* **54**:S47-48, 1999.

33. Horner A, Takabayashi K, Burger J, Ronaghy A, Cinman N, Spiegelberg HL and **Raz E**. Immunostimulatory sequences ODNs induce an innate type 1 cytokine response form human PBMCs and inhibit IL-4 dependent CD23 expression and IgE production. *J Allergy Clin Immunol* **105:**S69, 2000.

34. Van Nest G, Eiden J, Tuck SF, Kagey-Sobotka A, Creticos PS, Lichtenstein LM, Spiegelberg HL and **Raz E**. Conjugation of immunostimulatory DNA (ISS) to the major short ragweed allergen, Amba1, enhances immunogenicity and reduces allergenicity. *J Allergy Clin Immunol* **105:**S70, 2000.

35. Cho HJ, Nguyen M-D, Yucan C and **Raz E.** T helper independent activation of antigen specific cytotoxic lymphocytes and exogenous antigen presentation by immunostimulatory sequences based vaccines. *J Allergy Clin Immunol* **105**: S163, 2000.

36. Magone T, Chan C-C, Whitcup S and **Raz E**. Systemic and mucosal administration of immunostimulatory DNA inhibits early and late phases of murine allergic conjunctivitis. *J Allergy Clin Immunol* **105**:S311, 2000.

37. Takabayashi K, Takenouchi M, Kim S, Horner A and **Raz E**. Increased in vivo efficiency of pDNA vaccination utilizing a humanized Amb a 1 gene construct. *J Allergy Clin Immunol* **105:**S311, 2000.

38. Cho HJ, Datta S, Nguyen M-D, Hayashi T and **Raz E**. T helper-independent activation of cytotoxic lymphocytes by immunostimulatory sequence DNA oligonucleotide-based vaccines requires exogenous antigen presentation and B7-1/ -2 and IL-12 co-stimulation. *FASEB J* **14**:A1056, 2000

39. Chu W-M, Lois M, Takabayashi K, Shende S, Gong X, Ouyang H-H, Dennis CA, Li GC, Kadonaga JT and **Raz E**. Ku activates innate immunity in response to immuno-stimulatory DNA. *FASEB J* 2000.

40. Horner AA, Takabayashi K, Belikov I, Nguyen M-D, Cinman N, Richman DD and **Raz E**. Induction of systemic and mucosal T and B cell immunity by mucosal vaccination with immunostimulatory DNA and gp120. *FASEB J* **14**: A941, 2000.

41. Van Uden JH, Berry CC and **Raz E**. The frequency of ISS in pathogens correlates with their infectious strategy: The role of ISS in the host-pathogen relationship. *FASEB J* **14**: A948, 2000.

42. Takabayshi K, Takenouchi M, Kim S, Horner AA Spiegelberg H and **Raz E**. The efficacy of plasmid DNA vaccination against the short ragweed allergen Amba1 is increased by humanizing its codon usage and by co-injecting ISS-ODN. *FASEB J* **14**: A1065, 2000.

43. Takabayashi K and **Raz E**. Step-wise improvements in the generation of Amb a1 specific gene vaccine. *Arch Dermatol Res* **292**:R205, 2000.

44. Rachmilewitz D, Karmeli F, Raz E. Immunostimulatory DNA sequences ameliorate the extent of experimental colitis in mice and rats. *Gastroenterology*, **118**:A576, 2000.

45. Hayashi T, Rao SP, Takabayshi K, Van Ucden JH Kornbluth RS, Baird SM, Cantanzaro A and **Raz E**. Enhancement of immunity against *Mycobacterium avium* infection by immunostimulatory DNA. *FASEB J* **15**: A651, 2001.

46. Datta DK, Horner AA, Takabayashi K, Hayashi T, Richman DD, and **Raz E**. Optimization of anti-HIV immune response using Immunostimulatory DNA sequences vaccines. *FASEB J* **15**:A652, 2001.

47. Chu W-M, Takabayashi K, Yoon T, Gong X. Li GC, Karin M and **Raz E**. DNA-PKcs is required for induction of innate immunity by immunostimulatory DNA. *FASEB J* **15**: A711, 2001.

48. Ronaghy A, Prakken BJ, Firestein GF, Carson DA and **Raz E**. Immunostimulatory DNA determine the course of adjuvant arthritis. *Arthritis Rheum*. **44**: S87, 2001.

49. Horner AA, Sharma B, Zubeldia J, Takabayashi K, Libet L, Liu F-T and **Raz E**. Allergen conjugated to immunostimulatory DNA is more immunogenic and less anaphylactogenic than native allergen. *J Allergy Clin Immunol* **109:** S170, 2002.

50. Widhopf JF, Spiegleberg, **Raz E** and Horner AA. Immunostimulatory oligonucleotide activates human PBMCs but prevents IL-4 dependent IL-4 synthesis. *J Allergy Clin Immunol* **109:** S279, 2002.

51. Rachmilewitz D, Karmeli F, Lee J and **Raz E**. Immunostimulatory DNA sequences decreases the enhanced colonic TNFa and IL-1b generation in IBD. *Gastroentrology* **122**: S1025, 2002.

52. Rachmilewitz D, Karmeli F, Hayashi T and **Raz E**. Immunostimulatory DNA sequences ameliorate the severity of experimental colitis irrespective to the underlying T cell response. *Gastroentrology* **122**: T665, 2002.

53. Rachmilewitz D, Karmeli F, Takabayashi K and **Raz E**. Amelioration of experimental colitis by probiotic is due to the immunostimulatory effects of its DNA. *Gastroentrology* **122**: T1004, 2002.

54. Rhee C, Libet L, Chisholm D, Horner AA and **Raz E**. Immunostimulatory sequences oligodeoxynucleotides provide allergen independent protection from allergic rhinitis. *J Allergy Clin Immunol* **111:** S82, 2003.

55. **Raz E**. A subset of TLR ligands induces cross-presentation by bone marrow derived dendritic cells. *The Journal of Gene Therapy* **5**: S27, 2003.

56. Rachmilewitz D, **Raz E**. Discussion on toll-like receptor 9 signaling mediates the anti-inflammatory effects of probiotics in murine experimental colitis. *Gastroenterology* **127**:367, 2004.

57. Hayashi T, Beck L, Rossetto C, Gong X, Takikawa O, Takabayashi K, Broide B, Carson DA and **Raz E**. Inhibition of experimental asthma by innate immunity: Role of Indoleamine 2,3-dioxygenase. J Endotoxin Research **10**, 379. 2004

ISSUED PATENTS:

1. USPN 5,679,647. Methods and devices for immunizing a host against tumor-associated antigens through administration of naked polynucleotides, which encode tumor-associated antigenic peptides, 1997.

2. USPN 5,804,566. Methods and devices for immunizing a host through administration of naked polynucleotides, which encode allergenic peptides, 1998.

3. USPN 5,830,877. Method, compositions and devices for administration of naked polynucleotides, which encode antigens and immunostimulatory peptides, 1998.

4. USPN 5,849,719. Method for treating allergic lung disease, 1998.

5. USPN 5,985,847. Devices for administration of naked polynucleotides, which encode biologically active peptides, 1999.

6. USPN 6,174,872. Method for treating allergic lung disease, 2001.

7. USPN 6,225,292. Inhibitors of DNA immunostimulatory sequence activity, 2001.

8. USPN 6,534,062. A method to induce CTL response in immune deficient patients, 2001.

9. USPN 6,426,336. Method for treating allergic lung disease, 2002.

10. USPN 6,498,148. Immunization-free methods for treating antigen-stimulated inflammation in a mammalian host and shifting the host's antigen immune responsiveness to a Th1 phenotype, 2002.

11. USPN 6,514,948, Method for enhancing an immune response, 2003.

12. USPN 6,610,661. Immunostimulatory polynucleotide/immunomodulatory molecule conjugates, 2003.

13. USPN 6,613,751. Method for treating inflammatory bowel disease and other forms of gastrointestinal inflammation, 2003.

14. USPN 6,534,062. Methods for increasing a cytotoxic T lymphocyte response in vivo, 2003.

15. USPN 6,552,006. Immunomodulatory polynucleotides in treatment of an infection by an intracellular pathogen, 2003.

16. USPN 6,589,940. Immunostimulatory oligonucleotides, compositions thereof and methods of use thereof, 2003.

17. USPN 6,893,821. Agents that modulate DNA-PK activity and methods of use thereof, 2005.

18. USPN 6,951,845. Method for treating allergic lung disease, 2005.

19. USPN 0,180,962. Inactivated probiotic bacteria and method of use thereof, 2005.

20. USPN 7,560,436, Methods of treating gastrointestinal inflammation, 2009

21. USPN 8,729,039, Inhibitors of DNA immunostimulatory sequence activity 2014.