EuroSciCon

DAY 1

Scientific Tracks & Abstracts

JOINT EVENT

22nd Edition of International Conference on

Immunology and Evolution of Infectious Diseases

&

12th Edition of International Conference on

Tissue Engineering and Regenerative Medicine

May 10-11, 2018 | Frankfurt, Germany

DAY 1

May 10, 2018

Sessions

Classical Immunology | Tissue Engineering and Regeneration | Immunoinformatics | Immunological Disorders | Autoimmune Diseases | Infectious Disease Drivers | Emerging and Re-emerging Infectious Diseases Remedy for Immunity and Infection

Session Chair
Hadaf Dhafir Al Yaseen
University of Baghdad, Iraq

Session Co-Chair
Yawei Liu
University of Copenhagen, Denmark

Session Introduction

Title: Detection of malaria parasites after treatment in travelers: A 12-months longitudinal study and statistical modelling analysis

Manijeh Vafa Hofmann, Karolinska Institutet, Sweden

Title: Antibodies instead of antibiotics to kill bacteria - experience with anti-pseudo IgY with cystic fibrosis patients

Hans Kollberg, Uppsala Universitet, Sweden

Title: Can recurrent furunculosis be treated without the use of antibiotics?

Huang Wei Ling, Medical Acupuncture and Pain Management Clinic, Brazil

Title: Artery tertiary lymphoid organs: powerhouses of atherosclerosis immunity

Desheng Hu, Wuhan Union Hospital, China

Title: The Hysteria surrounding Listeria in South Africa

Rochelle Van der Merwe, South African Society of Travel Medicine, South Africa

Title: HLA Ib molecules in alloimmunization and inflammatory response

Julie Di Cristofaro, Aix Marseille University, France

Title: Induction of autoimmune antibodies and the immune response of prolactin direct the management in patients infected with hepatitis C virus: an Iraqi study

Hadaf Dhafir Al Yaseen, University of Baghdad, Iraq

Title: Neuronal IFN-beta–induced PI3K/Akt-FoxA1 signaling is essential for generation of FoxA1^{+}Treg cells

Yawei Liu, University of Copenhagen, Denmark

Title: Discitis osteomyelitis pathophysiology and different management

Sameh Elmorsy Hassan, El-Matrya Educational Hospital, Egypt

Title: Construction of human chondrocyte sheets on cancellous bone to treat cartilage defects

Sopita Wongin, King Mongkut's University of Technology, Thailand

Title: Live imaging CAR19T therapy: immune response under a new light

Kajal Chaudhry, University of New South Wales, Australia

Title: The immune profile of prostate epithelial cells by IL-6 activation mediated by STAT3 and AKT signaling pathways

Yosra Bouraoui, Carthage University, Tunisia

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Manijeh Vafa Homann, J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

DETECTION OF MALARIA PARASITES AFTER TREATMENT IN TRAVELERS: A 12-MONTHS LONGITUDINAL STUDY AND STATISTICAL MODELLING ANALYSIS

Manijeh Vafa Homann
Karolinska Institutet, Sweden

The rapid clearance of malaria parasite DNA from circulation has widely been accepted as a fact without being systemically investigated. In this longitudinal study, we examined the duration of PCR positivity as well as the presence of gametocytes in adult travelers treated for *Plasmodium falciparum* malaria in a malaria-free setting, using microscopy, species-specific qPCR, merozoite surface protein 2 (msp2)-genotyping PCR, and gametocyte-specific qPCR. Venous blood was collected at the time of admission and prospectively up to one year. Patients were treated with a full regimen of six doses of artemether-lumefantrine (AL). In 31 successfully treated individuals, asexual parasites were seen by microscopy until two days after treatment, whereas parasite DNA was detected by msp2- and species-specific PCR up to days 31 and 42, respectively. Statistical modelling predicted 26% (± 0•05 SE) species-specific PCR positivity until day 40 and estimated 48 days for all samples to become PCR negative. Gametocytes were detected by microscopy and PCR latest two days after treatment. CT values correlated well with microscopy-defined parasite densities before but not after treatment started. Duration of PCR positivity was correlated neither with the initial (asexual) parasite densities nor with the initial presence of gametocytes.These results reveal that PCR positivity can persist several weeks after treatment without evidence of viable sexual or asexual parasites, and that the removal of dead parasites and their debris is not as rapid as it is believed, indicating that PCR may overestimate post-treatment parasite prevalence in epidemiological studies, and underestimate drug efficiency in clinical management and trials. This report underlines an important diagnostic matter essentially in infectious diseases and particularly in malaria, and points out the need for detection tool as sensitive as PCR and as accurate as microscopy

Biography

She holds a BSc. in microbiology and PhD in immunology and has about 17 years of research experience in infectious diseases and vaccines. Her research path started as research assistant at Pasteur Institute of Iran, where she was involved in recombinant vaccine studies against Leishmania major, and assisted the group leader to establish and run the "Molecular Immunology and Vaccine lab". She fulfilled her PhD studies at Stockholm University on the general topic of "Human genetic factors involved in immunity to malaria", while contributing to allergy studies as well. As Postdoctoral researcher and Assistant Professor her research focus turned towards genetic diversity of malaria parasite in relation to transmission intensity and prospective studies of malaria in travelers. Years of engagement with tropical diseases provided her with experience of filed study as well as broad collaborative network. Beside academic education, she schooled for ICH-GCP, Pharmacovigilance-Drug Safety, GMP, and coaching-leadership.

manijehvafa@gmail.com

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ANTIBODIES INSTEAD OF ANTIBIOTICS TO KILL BACTERIA - EXPERIENCE WITH ANTI-PSEUDO IGY WITH CYSTIC FIBROSIS PATIENTS

Hans Kollberg
Uppsala University, Sweden

There is an increasing prevalence of antibiotic resistant bacteria. This makes traditional antibiotics less effective. More than 25000 people in Europe die each year from infections of resistant bacteria. This emphasizes the need to find alternatives to antibiotics. The drug should fight infections, it should not give resistant bacteria or viruses, it should be easy to scale up and it should be cheap. Such a drug exists. Avian antibodies from immunized hens act as strong weapons against a series of common infections. Hence these can be used either as a complement or an alternative to antibiotics. It is high time for health authorities, pharmaceutical companies, physicians, and researchers etc., to be involved in the fight against infectious diseases by joining this strong pull for avian antibodies-IgY. Clinical studies are carried out including use of IgY will diminish the development of antibiotic resistant microbes.

Biography

Hans Kollberg is Professor emeritus, Pediatrics, Children´s University Hospital, Uppsala. He has a Specialization in Pediatrics from Swedish Medical Board in 1966. He holds a Medical Doctors Degree (MD) in Pediatrics from Uppsala University, Sweden 1961. He started his career as Staff Physician, Good Samaritan Hospital, Phoenix, Arizona during 1959-1966. He extended his service as a Director of the CF Center, University Hospital, Uppsala in 1968-1982 and Umea in 1985-1999. He was Professor at the University of Kuwait during 1982-1985. He has been a recipient of many awards and grants. He is the Founder of the Swedish Cystic Fibrosis Association. His research experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests as a Research Scholar reflect in his wide range of publications in various national and international journals.

hans.kollberg@kbh.uu.se

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CAN RECURRENT FURUNCULOSIS BE TREATED WITHOUT THE USE OF ANTIBIOTICS?

Huang Wei Ling
Medical Acupuncture and Pain Management Clinic, Brazil

Background: Furunculosis is a deep infection of the hair follicle leading to abscess formation with accumulation of pus and necrotic tissue. Furuncles appear as red, swollen, and tender nodules on hair-bearing parts of the body, and the most common infectious agent is *Staphylococcus aureus*, but other bacteria may also be causative. The management of recurrent furunculosis is problematic and may be disappointing. Simple incision and drainage may be sufficient in solitary lesions, but systemic antibiotic therapy may be required. *S. aureus* has the ability of developing resistance to different antibiotics. Traditional Chinese Medicine (TCM) believes furunculosis is mostly caused by invasion of dampness and heat. The treatment in TCM is intended to dissipate heat and detoxify the body.

Purpose: The purpose of this study is to demonstrate that recurrent furunculosis can be treated without the use of antibiotics.

Methods: Through the report of two clinical cases, both men, suffering from recurrent furunculosis, presented little improvement with the use of antibiotic therapy. Through earlier medicine theories, such as TCM, methods for energy balance of yin, yang, qi and blood were used, allied with apex ear bloodletting to withdrawal of internal heat, as well as dietary counseling.

Results: Both cases obtained a significant improvement with dietary counseling according to TCM and auricular acupuncture sessions associated with apex ear bloodletting to clear out the internal heat.

Conclusion: By reporting these two clinical cases, we can conclude that recurrent furunculosis can be treated without the use of antibiotics. For this goal, we must resort to earlier medicine theories like TCM to treat the root of the problem, not only the symptom.

Biography

Huang Wei Ling has graduated in Medicine in Brazil, specializing in infectious and parasitic diseases, a General Practitioner and Parenteral and Enteral Medical Nutrition Therapist. She was in charge of the Hospital Infection Control Service of the City of Franca's General Hospital, she was responsible for the control of all prescribed antimicrobial medication, and received an award for the best paper presented at the Brazilian Hospital infection Control Congress in 1998. She was coordinator of both the Infection Control and the Nutritional Support Committee in Sao Joaquim Hospital in Franca, and also worked at the infectious Sexually Transmitted Disease Reference Center. She is the owner of the Medical Acupuncture and Pain Management Clinic, and since 1997 she has been presenting her work worldwide concerning the treatment of various diseases using techniques based on several medical traditions around the world.

weilingmg@gmail.com

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Desheng Hu, J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

ARTERY TERTIARY LYMPHOID ORGANS: POWERHOUSES OF ATHEROSCLEROSIS IMMUNITY

Desheng Hu
Wuhan Union Hospital, China

Tertiary lymphoid organs (TLOs) emerge during non-resolving peripheral inflammation, but their impact on disease progression remains unknown. We have found in aged Apoe$^{-/-}$ mice that artery TLOs (ATLOs) controlled highly territorialized aorta T cell responses. ATLOs promoted T cell recruitment, primed CD4^{+} T cells, generated CD4^{+} , CD8^{+} , T regulatory (Treg) effector and central memory cells, converted naive CD4^{+} T cells into induced Treg cells, and presented antigen by an unusual set of dendritic cells and B cells. Meanwhile, vascular smooth muscle cell lymphotoxin β receptors (VSMC-LTβRs) protected against atherosclerosis by maintaining structure, cellularity, and size of ATLOs though VSMC-LTβRs did not affect secondary lymphoid organs. Atherosclerosis was markedly exacerbated in Apoe$^{-/-}$ Ltbr$^{-/-}$ and to a similar extent in aged Apoe$^{-/-}$Ltbr$^{fl/fl}$, Tagln-cre mice. These data support the conclusion that the immune system employs ATLOs to organize aorta T cell homeostasis during aging and that VSMC-LTβRs participate in atherosclerosis protection via ATLOs.

Biography

Desheng Hu has received his PhD degree in Immunology at the Leibniz Institute for Ageing Research, Jena University, Germany in 2012. After that he did his Postdoc training in the Institute for Immunology of Helmholtz Zentrum Munich and in the Institute for Immunology of Ludwig Maximilian University of Munich. In 2017, he went back to China and established his own research group in Wuhan Union Hospital, Wuhan, China. His research focuses on Vascular Immunology. So far, he has published several papers in high impact factor journals, such as *Nature Immunology, Immunity and Circulation Research.*

desheng_hu@126.com

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Rochelle Van der Merwe, J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

THE HYSTERIA SURROUNDING LISTERIA IN SOUTH AFRICA

Rochelle Van der Merwe
South African Society of Travel Medicine, South Africa

Listeriosis is the new and deadly disease emerging after years of being the quiet one sitting in the corner while HIV and Malaria caused havoc and massive outbreaks and mortality rates sky rocketing. Our population is well informed and up to date on most of the diseases and as soon as listeria was mentioned in the same sentence as processed foods, we created mass hysteria in all the emergency departments with worried patients, ill-informed patients and really sick patients, with very little knowledge about listeria. I want to discuss the pathogenicity as a re-emerging disease we have not heard from in a long time with very little information regarding pandemic and epidemics. Being in the midst of the hysteria, I think giving an inside view and up close, first-hand experience on what happened as soon as the outbreak was confirmed leading up to the massive explosion of patients literally running to ED after the source was confirmed as one of our leading manufacturers and producers of processed meat. We have had around 180 deaths in SA due to Listeria especially in the age groups of the very young, elderly, pregnant and immunosuppressed patients. The biggest factor leading to the outbreak initially was that we were not looking for it as we were so focused on Malaria as leading cause of fever and confusion etc. at the time of the outbreak and NICD confirmed that Malaria deaths doubled in 2017 vs. 2016. Listeriosis was monitored and regarded as a minor infection, but, while everyone was focused on travel history, Listeria was silently killing dozens. I would like to include the basic information as to what, where and how as the simple things were missed while we were looking for complicated illnesses

Biography

Rochelle is a registered medical practitioner, completed her studies in 2010 at the University of Pretoria. She finished her Diploma in Emergency Medicine in 2017 along with her certificate in Travel Medicine in 2016. She accomplished her dispensing license and have been updated with ATLS, ACLS and PALS in South Africa. She works for one of the busiest, private hospital, Emergency departments in South Africa seeing a multitude of trauma and medical emergencies. She is interested in Family and Travel Medicine practice affiliated with the ED with a special interest in Aesthetic Medicine. She is currently serving on the executive board for the Society of Travel Medicine in South Africa working closely with the NICD with all infectious disease monitoring in SA and submitting interesting case studies to Federation of Infectious Diseases in SA (FIDSSA) on behalf of SASTM.

dr.rochellelee@gmail.com

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HLA IB MOLECULES IN ALLOIMMUNIZATION AND INFLAMMATORY RESPONSE

Julie Di Cristofaro
Aix Marseille University, France

Today topic is human leukocyte antigen (HLA) non-classical class Ib genes, HLA-G, -E and -F, involved in immune tolerance. HLA-G immune-inhibitory role acting directly on immune cells is extensively documented. HLA-G inhibits natural killer (NK) cytotoxicity. This molecule is also able to negatively influence antigen presentation of dendritic cells (DC), B and T lymphocytes activation and proliferation. *HLA-G* gene is characterized by few coding alleles and polymorphic regulatory regions, organized in a restricted number of haplotypes (UTR). Both HLA-G genetic polymorphism and expression are correlated to clinical outcome in different pathologies, particularly in inflammatory disease and organ transplantation. HLA-G phylogeny reflects *HLA-G* haplotype specific association with different clinical conditions. HLA-G sequences associated with immune impairments in pathological conditions are grouped in same phylogenetic clades. Furthermore, this molecule displays several isoforms, soluble or membrane bound, generated by alternative splicing. Besides its expression in immune cells, *HLA-G* is expressed by the epithelium and is implicated in cell proliferation and differentiation. However, little is known about the qualitative and quantitative HLA-G expression in epithelial cells. *HLA-E* gene is the least polymorphic of the HLA class Ib genes. While its transcripts have been detected in several tissues, membrane expression appears to be limited in physiological condition to endothelial cells, T and B lymphocytes, macrophages and trophoblast cells. HLA-E peptide-binding groove, composed by α1 and α2 domains, loads highly conserved peptides mainly derived from classical HLA class I leader peptide sequences. HLA-E binds preferentially HLA-G signal peptide. HLA-E inhibit NK cytotoxicity trough the CD94/NKG2A inhibitory receptor. HLA-F appears to be expressed mostly in intracellular compartment; its surface expression is detected on activated B, T, and NK cells *in vitro* and on extravillous-trophoblast that had invaded the maternal decidua *in vivo*. HLA-F, expressed as an open conformer molecule, binds the inhibitory receptor *KIR3DS1*.

Biography

J Di Cristofaro has her experience in Human Genetics applied to Personal Medicine. She graduated PhD in Oncology from the Aix Marseille University, Immunological Therapies in Paris Descartes University and Forensics in Bordeaux University. After completing her PhD at INSERM, she has joined the French Blood Center to set up a genetic analysis platform dedicated to Immunogenetics, Immunohematology and Anthropogenetics. She has worked on molecular carcinogenesis and set up markers to help carcinomas classification and worked in anthropogenetics on Y chromosome phylogeny. Her current researches focus is HLA Ib molecules in immunization and inflammatory responses. Her aim is to validate inflammatory and/or alloimmunization prognostic markers in blood transfusions, pregnancies, transplantation or inflammatory diseases. Her team works on genetic polymorphisms, transcriptional expression variation both at qualitative level and quantitative level, protein expression and function.

Julie.dicristofaro@efs.sante.fr

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INDUCTION OF AUTOIMMUNE ANTIBODIES AND THE IMMUNE RESPONSE OF PROLACTIN DIRECT THE MANAGEMENT IN PATIENTS INFECTED WITH HEPATITIS C VIRUS: AN IRAQI STUDY

Hadaf Dhafir Al Yaseen
University of Baghdad, Iraq

Hepatitis C virus (HCV) is a serious infectious disease that can cause lifelong infection. Infection with chronic hepatitis C virus (HCV) can lead to autoimmune hepatitis (AIH) in a minority of patients. Viral infection induces, both (*in vivo* and *in vitro*) tumor necrosis factor (TNF-alpha) production in hepatocytes, and these findings suggest that TNF-alpha may have an important role in human liver diseases induced by viruses, together with the prolactin hormone, which is an endocrinal hormone that acts like a cytokine involved in immune response. Our study showed that chronic hepatitis C virus infection associated with a statistical significant increase in the antismooth muscle antibody, while no statistical significant increase in antinuclear antibody were shown in this study. The study elucidated a statistically non-significant increase in mean value of prolactin hormone in chronic hepatitis C patients but a significant increase in tumor necrosis factor-alpha. No significant correlations were found between prolactin hormone and tumor necrosis factor-alpha. The study concluded that chronic hepatitis C associated with an immunological abnormality mainly represented with antismooth muscle antibody. Tumor necrosis factor-alpha increased in chronic hepatitis C virus infection with no significant correlations with prolactin hormone.

Biography

Prof. Dr. Hadaf Dhafir Al Yaseen was faculty in University of Baghdad in the Department of Biochemistry, College of Medicine at University of Baghdad. She finished her Post Doctorate in Clinical Biochemistry at Al-Nahrain University. She is currently the head of the Department of Clinical Biochemistry, University of Baghdad, Iraq. She actively participated in 43 local conferences in Iraq and 26 abroad, making a total of 69 conferences attendance and paper presentation. She also published 85 articles.

hedefelyassin@gmail.com

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Yawei Liu et al., J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

NEURONAL IFN-BETA–INDUCED PI3K/AKT-FOXA1 SIGNALING IS ESSENTIAL FOR GENERATION OF FOXA1^{+}TREG CELLS

Yawei Liu[1], Andrea Marin[1], Patrick Ejlerskov[1], Louise Munk Rasmussen[1], Marco Prinz[2, 3] and **Shohreh Issazadeh-Navikas[1]**

[1]BRIC - University of Copenhagen, Denmark
[2]Institute for Neuropathology - University of Copenhagen, Germany
[3]Centre for Biological Signaling Studies - University of Copenhagen, Germany

Neurons reprogram encephalitogenic T cells ($T_{(enc)}$) to become regulatory T_{reg} cells FoxP3$^{+}T_{regs}$ or FoxA1$^{+}T_{regs}$. We reported previously that neuronal ability to generate FoxA1$^{+}T_{regs}$ was central to preventing neuroinflammation in experimental autoimmune encephalomyelitis (EAE). Mice lacking the cytokine interferon (IFN)β were defective in generating FoxA1$^{+}T_{regs}$ in the brain. Neuron-induced FoxA1$^{+}T_{regs}$ were capable of preventing chronic and demyelinating EAE in mice lacking IFNβ . Here we show that lack of neuronal IFNβ - signaling was associated with lack of neuronal expression of program death-ligand1 (PDL1), which also prevented their ability to reprogram T_{enc} cells to FoxA1$^{+}T_{regs}$. Transfer of IFNβ competent encephalitogenic T cells to mice lacking IFNβ or its receptor; IFN AR in the brain (*Nes^{Cre}:Ifnar$^{fl/fl}$*) led to the absence of FoxA1+T_{regs} generation and aggravated neuroinflammation. We identified that IFNβ activated neuronal PI3K/Akt signaling. Phosphorylated Akt consequently bound to transcription factor FoxA1, which upon translocation to the nucleus induced neuronal PDL1 expression. Conversely, inhibition of PI3K/Akt, or FoxA1 and PDL1 knock-down blocked neuronal ability to generate FoxA1+T_{regs}. Our study identified crucial molecular player's central for neuronal ability to reprogram pathogenic T-cells and to generate FoxA1$^{+}T_{regs}$, which could be a therapeutic target to prevent neuroinflammation.

Biography

Yawei Liu has a medical doctor background and has been doing medical research for more than 10 years. Since her Ph.D., she mainly focused on the role of neurons in the regulation of auto-reactive T cells and central nervous system (CNS) inflammation. We reported a novel function for neurons as being highly immune-competent cells, based on their crucial role in the regulation of T-cell responses and CNS inflammation in models of multiple sclerosis

Yawei.liu@bric.ku.dk

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Sameh Elmorsy Hassan, J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

DISCITIS OSTEOMYELITIS PATHOPHYSIOLOGY AND DIFFERENT MANAGEMENT

Sameh Elmorsy Hassan
El-Matrya Educational Hospital, Egypt

Discitis accounts for nearly 2.2 of 100,000 populations and its presence is an indicator for immunocompromisation, as its risk factors includes diabetes mellitus, IV drug abuse and hemodialysis. As disc nutrition is through diffusion from end plates. So once you diagnose discitis you have to search for immunocompromized agent asking for lab is mandatory to manage medically is the best choice, unless there is refractory pain or neurological deficits, following up of patient by erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) first sign of improvement is decrease of CRP it occurs in two weeks. In acute stage of inflammation surgical intervention is not recommended but in chronic stage you can manage it surgically. Discitis is a serious problem which may cause death and it's a vicious circle as risk factors are immunocompromization and results are more compromising most probably septicaemia or viraemia is the cause of death. Most appropriate antibiotics should be selected for 3-6 months; intradiscal injection of antibiotics may decrease postoperative discitis as proved by meta-analysis. How discitis happen, risk factors, medical treatment, surgical, what to choose when you choose.

Biography

Sameh Elmorsy Hassan has an experience in Neurosurgery for nine years in educational hospitals, currently pursuing his MD of Neurosurgery in Cairo University. He has completed his MSc in Neurosurgery. He is a Member of ESA, SPINE, Member of ESNS a lot of conferences about Neurosurgery and Spine Administrator of Egyptian and World Neurosurgeons Community on telegram

dr_Sameh13@hotmail.com

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Sopita Wongin et al., J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

CONSTRUCTION OF HUMAN CHONDROCYTE SHEETS ON CANCELLOUS BONE TO TREAT CARTILAGE DEFECTS

Sopita Wongin[1], Saranatra Waikakul[2], Pojchong Chotiyarnwong[2] and **Kwanchanok Viravaidya-Pasuwat[1]**

[1]King Mongkut's University of Technology, Thailand
[2]Siriraj Hospital-Mahidol University, Thailand

Human chondrocyte sheets have attracted attention as tissue-engineered cartilage for the treatment of articular cartilage defects. However, the process of transferring the human chondrocyte sheets to cartilage defects is complicated because the cell sheets are thin and fragile. This study investigated whether human chondrocyte sheets could adhere to human cancellous bone and express cartilage-specific markers. Human chondrocyte sheets were constructed using osteoarthritic chondrocytes and temperature-responsive culture plates. Monolayer and triple-layered chondrocyte sheets were placed on the top of cancellous bones and cultured in basal medium. The expressions of cartilage surface (lubricin) and hypertrophic chondrocyte (collagen type X) markers in the tissue structure were observed by immunofluorescence staining. After one month, all the chondrocyte sheets were firmly attached, with growth inside the cancellous bones, as shown by fluorescence staining of the nuclei and stress fibers. The cells also adhered and proliferated to reach confluence on the tissue culture surface outside the cancellous bone, indicating cell growth and viability. Moreover, the expressions of lubricin and collagen type X were found in chondrocyte cultures. Our results indicated that the human chondrocyte sheets showed potential to adhere to cancellous bone with expression of cartilage surface markers; although hypertrophic markers were found in the cultures as we used osteoarthritic chondrocytes. Attachment of human chondrocyte sheets to cancellous bone could enhance the thickness and support the structure of engineered cartilage tissue transferred to the defective areas. This would be beneficial for researchers to develop a protocol for the treatment of articular cartilage defects.

Biography

Sopita Wongin is a posdoctoral fellow in Biological Engineering Program, Faculty of Engineering, King Mongkut's University of Technology Thonburi. Sopita got a scholarship from the Royal Golden Julilee PhD Program and completed her PhD at King Mongkut's University of Technology Thonburi, Thailand in 2017. During her PhD, she worked as a special research student for a year in Laboratory of BioProcess Systems Engineering (BPSE), Department of Biotechnology, Graduate School of Engineering, Osaka University, Japan.

Her research interests lie in the area of cell sheet technology, tissue engineering and advanced cell technology. Her recent publications include *Chondrogenesis and Hypertrophy in Response to Aggregate Behaviors of Human Mesenchymal Stem Cells on a Dendrimer-Immobilized Surface (2017), Effect of Cell Sheet Manipulation Techniques on The Expression of Collagen Type II by Altering Stress Fiber Formation (2018) and Maintenance of the human chondrocyte phenotype on a dendrimer-immobilized surface for chondrocyte sheet engineering (2018).*

sopitawongin@gmail.com

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LIVE IMAGING CAR19T THERAPY: IMMUNE RESPONSE UNDER A NEW LIGHT

Kajal Chaudhry[1], Sylvie Shen[2, 3], Liyuan Wang[1], David Bishop[4, 5, 6], Ken Micklethwaite[4, 5, 6], Alla Dolnikov[2, 3] and **Robert Nordon[1]**

[1]University of New South Wales, Australia
[2]Lowy Cancer Research Centre, Australia
[3]Kids Cancer Centre-Sydney Children's Hospital, Australia
[4]Westmead Institute for Medical Research, Australia
[5]Sydney Medical School-University of Sydney, Australia
[6]Westmead Hospital, Australia

Adoptive therapy with chimeric antigen receptor (CAR)-modified T cells has induced long-term remission in patients with CD19+ leukaemia but limited success in solid tumors. The cellular mechanisms driving the immune responses mediated by CART-cells still remain obscure. The aim of this study is to directly observe immune synapse formation, tumor cell killing and kinetics of CART cell activation by live cell imaging to explore its potential against different types of cancer. Second-generation CAR specific for CD19 antigen-expressing CD28 co-stimulatory domain were co-cultured with CD19+ leukaemia Nalm6 and visualized in real time using time-lapse microscopy. The infiltration and cytotoxicity of solid tumors by both natural killer (NK) and T cells was studied against SK-N-As neuroblastoma cell line spheroids to determine their synergy. Live cell imaging of CART cell antitumor response showed that CART cells not only induced direct cytolysis of tumor cells but arrest cell division and migration. CART cells have also demonstrated the indirect killing where they induce leukemic cell apoptosis without stable conjugation. Thus non-cytolytic mechanisms may play an important role in determining the anti-leukemic activity of CART cells. Live cell imaging has shown that both T and NK cells are capable of infiltrating neuroblastoma spheroids. However, NK cells reduced the size of spheroids more than T cells. Unlike T cells, NK cells were also able to completely dissociate day 3 immature neuroblastoma spheroids. Future studies will examine whether NK cells can enhance the potency of GD2 ligand specific T cells targeting solid tumors by dissociating the tumor capsule.

Biography

Kajal Chaudhry is a PhD student in the Graduate School of Biomedical Engineering at University of New South Wales. She completed her MTech in Biochemical Engineering at Harcourt Butler Technical University, India. Her research interests include Genetic Engineering, Live Cell Imaging and Immunology.

kajal15chaudhry@gmail.com

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Yosra Bouraoui et al., J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

THE IMMUNE PROFILE OF PROSTATE EPITHELIAL CELLS BY IL-6 ACTIVATION MEDIATED BY STAT3 AND AKT SIGNALING PATHWAYS

Yosra Bouraoui[1, 2], N Ben Rais[3] and **R Oueslati[1]**
[1]Carthage University, Tunisia
[2]Jendouba University, Tunisia
[3]HMPIT, Tunisia

Introduction: The major signaling transduction of the pro-inflammatory cytokine IL-6 is through the transcription factor STAT3. However, PI3-K/AKT signaling pathway can also activated by IL-6 under prostate pathological conditions.

Objectives: The aim of this study is to evaluate the tissues levels of STAT3/IL-6/ AKT axis signaling in prostate tissues from patients with benign prostatic hyperplasia (BPH) and prostate cancer (PC).

Material & Methods: Immunohistochemical analyses for IL-6, Gp130, phospho-STAT3 (Tyr705) and phospho-AKT (Ser473) were carried out in 25 samples of BPH, 16 samples of PC.

Results: Immunoreactivity to IL-6 was consistently observed in stroma compartment of BPH and cytoplasmic epithelial cell in PC samples. Phospho-AKT was mainly expressed in membrane and the cytoplasm in PC compared to BPH. Immunoreactivity for phospho-STAT3 (Tyr705) was found in the stroma and the nucleus of epithelial and tumoral cells. No significant association was determined (r=0.153, *P*=0.518) when IL-6 and phospho-AKT (S473) were analyzed within BPH patients; whereas a positive correlation emerged between phospho-STAT3 (Tyr705) in the stroma and phospho-AKT (S473). In PC patients, significant relationship was documented between IL-6 and phospho-AKT (Ser473) (r=0.725, *P*=0.02). In addition, the correlation between phospho-AKT (Ser473) and phospho-STAT3 (Tyr705) as well as detected in the nucleus and the stroma were significant.

Conclusion: This suggests that IL-6/AKT axis could be one of mechanism to activate STAT3 by facilitating inflammatory cell migration and chronic inflammation in BPH and promote cancer progression by promoting cell growth in PC.

Biography

Yosra Bouraoui is experienced in immunology, inflammatory and prostate cancer. Yosra worked on prostate tissue by immunohistochemistry to analyze several signaling pathways in response to inflammatory cytokines such as IL-6, IL-1 and TNF alpha. She is expertized in prostate cell culture to study AKT signaling and NF kappa B mediated by IL1. At this moment she is working on petri net model (In silico model) my experiment results on pro inflammatory cytokines and its network in prostate pathologies. Yosra is currently working on the relation between inflammatory cytokine and immune metabolic in prostate tissue.

yosra_132001@yahoo.fr

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DAY 2

Scientific Tracks & Abstracts

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DAY 2

May 11, 2018

Sessions

Clinical Immunology | Tissue Engineering and Regeneration | Immunological Variability | Immunity and Host defence | Immune Adverse Effects | Microbiology and Clinical Infections | Versatile Immunology | Study of Evolution

Session Chair
Hans Kollberg
Uppsala Universitet, Sweden

Session Co-Chair
Manijeh Vafa Hofmann
Karolinska Institute, Sweden

Session Introduction

Title: Ayurveda a ray of hope for autoimmune disease psoriasis: A case study

Aarti Sharma, Ayurvedic Physician, Govindrakshak Ayurvedic and Acupuncture Centre, India

Title: ER - intrabody mediates knockdown of mouse IFN alpha in macrophages and dendritic cells

Thomas Boldicke, Helmholtz Centre for Infection Research, Germany

Title: Functionality of perfluorodecalin-based artificial oxygen carriers: Impact on the whole organism and on cellular level

Katja Bettina Ferenz, University of Duisburg Essen, Germany

Title: Can autoimmune hepatitis be treated without the use of corticosteroids and immunosuppressive drugs?

Huang Wei Ling, Medical Acupuncture and Pain Management Clinic, Brazil

Title: Generating a 3D human thyroid model *in vitro*

Ozlem Vural, Technical University of Berlin, Germany

Title: Induction of liver cirrhosis and treatment of cirrhotic liver by mesenchymal stem cells derived from adipose tissue in rat model

Dehghani SN, Shiraz University of Medical science, Iran

Title: Tissue regeneration and maintenance protocols for peri-implant mucositis and implantitis

Liviu Steier, University of Warwick, Germany

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Immunology and Evolution of Infectious Diseases
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Aarti Sharma, J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

AYURVEDA A RAY OF HOPE FOR AUTOIMMUNE DISEASE PSORIASIS: A CASE STUDY

Aarti Sharma
Govindrakshak Ayurvedic and Acupuncture Centre, India

An autoimmune disease condition arises due to abnormal immune system response. Psoriasis is one of very common auto immune disease. Case presented here is of thirty two year old male patient who have been suffering from psoriasis since last ten years. He had red itchy patches on both limbs and scalp with white silvery scales on its top. Ayurvedic treatment was started for his psoriasis, in which he was given purification therapy procedure known as Vamana followed by Takradhara for 21 days. Along-with, this he was given Mahatiktaka ghrit 20 ml with Mahamanjishtadi Kashaya 40 ml twice a day during Takradhara procedure. During Takradhara he was also given Virechana, another purification (Shodhana therapy) with Avipathi Churna. In continuation of this treatment he was given Talapodichhil (panchkarma procedure) treatment for another fourteen days along with Rasayana (rejuvenate) therapy with the herb *Plumbago zeylanica*. After these panchkarma procedures patient was given mahamanjishtadi kashayam 40ml and kaishore guggulu two tablets twice day for six months. With above treatment patient showed relief in all clinical parameters, particularly his itching and silvery scales disappeared. After 6 months, it was found that Ayurvedic treatment showed improvement in both Psoriasis Area and Severity Index (PASI) score along with Dermatological Life Quality Index (DLQI). The above case study shows that Ayurveda is a ray of hope for such chronic autoimmune disease like psoriasis and further extensive studies should be carried out for such treatment modalities which may prove very beneficial for people suffering from psoriasis.

Biography

Dr. Aarti Sharma born 1983 did Bachelor of Ayurvedic medicine and surgery (BAMS) from one of the premier Ayurvedic College, Govt. Ayurvedic College, Patiala (India) in 2007. Since then she has been practicing Ayurveda for the treatment of lifestyle disorders, stress, gynecological issues, hepatic disorders, arthritis and other chronic ailments in her own clinic named Govindrakshak Ayurvedic and Acupuncture Centre, Ludhiana. During these years, she also completed Masters in nutrition and dietetics, Post graduate diploma in Acupuncture and moxibustion, and in yoga and naturopathy along with a short term course in panchkarma. Suggesting a patient about diet, yoga, naturopathy, panchkarma along with Ayurvedic medicines and healthy lifestyle has always helped her patients for better recovery in a short span. She has been presenting her findings at various national and International conferences.

govind8rakshak@gmail.com

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Thomas Boldicke, J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

ER - INTRABODY MEDIATES KNOCKDOWN OF MOUSE IFN ALPHA IN MACROPHAGES AND DENDRITIC CELLS

Thomas Boldicke
Helmholtz Centre for Infection Research, Germany

IFN-α activates the transcription of various IFN-stimulated genes (ISGs) in virus infected cells. Proteins encoded by ISGs block viral transport into the host cell and inhibit viral gene transcription and translation. Due to the existence of 13 different high homologous isoforms of mouse IFN-α, an IFN-α knockout mouse has not yet been established by conventional knockout strategies and CRISPR/Cas. We used an IFN-α knockdown strategy based on ER-intrabodies to inhibit IFN-α secretion in macrophages and dendritic cells, the main producers of IFN-α after virus infection. To realize this strategy an ER intrabody was constructed from an anti-mouse IFN-α rat hybridoma recognizing five mice IFN-α isoforms. We follow the hypothesis that an intrabody recognizing five high homologous isoforms of the proteins will be able to knockdown all isoforms. The secretion of IFN-α was significantly inhibited by the intrabody in stable intrabody expressing RAW 264.7 macrophages and D1 dendritic cells as demonstrated by LISA, Mx2-dependent luciferase assay and immunofluorescence. This antibody has the potential to knockdown IFN-α in transgenic intrabody mice. These animals might be very valuable in the future to study in detail the role of IFN-α during active and chronic viral infections and in autoimmune diseases.

Biography

Thomas Boldicke has received his PhD in 1982 at the Max-Planck-Institut of Molecular Genetics, Berlin. He started his carrier as Postdoc at the German Research Centre for Biotechnology (GBF, Brunswick) in the Department of Genetics and Cell Biology by John Collins. Now he is a Senior Scientist at the Helmholtz Centre for Infection Research (HZI, former GBF) and Project Leader of intrabodies. In 2011, he qualified as a Professor in Molecular Biology and Cell Biology at the Technical University of Braunschweig. He is an expert in generating mouse and human hybridomas and in selecting and modifying recombinant antibodies. In the last decade he focused on the construction and characterization of intracellular antibodies. He has published 35 manuscripts.

thomas.boeldicke@helmholtz hzi.de

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22nd Edition of International Conference on
Immunology and Evolution of Infectious Diseases
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12th Edition of International Conference on
Tissue Engineering and Regenerative Medicine

Katja Bettina Ferenz et al., J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

FUNCTIONALITY OF PERFLUORODECALIN-BASED ARTIFICIAL OXYGEN CARRIERS: IMPACT ON THE WHOLE ORGANISM AND ON CELLULAR LEVEL

Katja Bettina Ferenz[1], Anna Wrobeln[2], Timm Schreiber[2], Joachim Fandrey[2], Alexandra Scheer[2] and **Michael Kirsch[2]**
[1]University Hospital Essen, Germany
[2]University of Duisburg-Essen, Germany

At present, despite long lasting efforts, a harmless, effective artificial oxygen carrier is missing for clinical use both in Europe and USA. To bypass this bottleneck albumin-derived perfluorocarbon-based nanocapsules (nanocapsules) were designed as a novel artificial oxygen carrier. Nanocapsules do not contain any chemical emulsifier and can be synthesized in different size ranges (Ø 100-1500 nm). Physical assessment of size, oxygen transport capacity and repeated loading and unloading of respiratory gases was already performed and *in vitro* functionality was successfully proven using a flow-controlled Langendorff heart. Functionality *in vivo* was shown using a normovolemic hemodilution model. Up to 95% of the blood (final hematocrit of ~5%) was exchanged stepwise against plasma-like medium with nanocapsules (treatment) or without nanocapsules (control) in order to dilute below the critical hematocrit of a rat (~10%). Rats were monitored throughout the experiment (e.g. heart rate, mean arterial pressure (MAP), body core temperature and blood gas analysis). Furthermore rat kidneys were assessed for expression of erythropoietin using RNA scope technique to track effects of oxygen shortage on cellular level. Compared to control group all animals of the treatment group survived longer, showed a significant higher MAP and presented a continuous physiological temperature. Importantly, within the observation period erythropoietin mRNA was detected only in control animals. In conclusion nanocapsules provide enough oxygen to supply an organism when erythrocytes are not sufficiently present anymore, whereas plasma-like medium fails in the absence of any oxygen carrier. These positive results are confirmed on cellular level with the oxygen-dependent presence of erythropoietin.

Biography

Katja Bettina Ferenz has completed her PhD in Pharmaceutical Chemistry from Westfaelische-Wilhelms-University Muenster in Germany. From 2011 to 2018, she led her own research group development of artificial oxygen carriers at University Hospital Essen, Institute of Physiological Chemistry, Germany. Since February 2018, she continues her research on artificial blood and organ regeneration as Assistant Professor at University Hospital Essen, Institute of Physiology. Since 2017, she is a member of the editorial boards for the *Journal of Nanochemistry and Nanotechnology and Journal of Nanoscience and Nanomedicine*. Her research interests are artificial oxygen carriers, regeneration of tissue/organs, micro- and nanoparticles, nanomedicine, perfluorocarbons, drug delivery and biomaterials.

katja.ferenz@uni-due.de

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Tissue Engineering and Regenerative Medicine

Huang Wei Ling, J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

CAN AUTOIMMUNE HEPATITIS BE TREATED WITHOUT THE USE OF CORTICOSTEROIDS AND IMMUNOSUPPRESSIVE DRUGS?

Huang Wei Ling
Medical Acupuncture and Pain Management Clinic, Brazil

Introduction: Autoimmune hepatitis (AIH) occurs when the liver is attacked by rogue immune cells that mistake it for foreign tissue or pathogen, causing inflammation, being the goal of the treatment to slow or stop the immune system attack on the liver. Treatment with prednisone is generally used initially and a second medication, azathioprine may be recommended as well. Prednisone, especially when taken long term, can cause a wide range of serious side effects, including diabetes, thinning bones (osteoporosis), broken bones (osteonecrosis), high blood pressure, cataracts, glaucoma and weight gain. Most people need to continue taking the prednisone for at least eighteen to twenty four months, and many remain on it for life. Although the patient may experience remission a few years after starting treatment, the disease often returns if the drug is discontinued. In traditional Chinese medicine (TCM) Yin deficiency plays a central role in autoimmune disease.

Purpose: The purpose of this study is to demonstrate that autoimmune hepatitis can be treated without the use of corticosteroids.

Methods: An autoimmune hepatitis treatment literature review has been done through earlier medicinal theories such as traditional Chinese medicine.

Results: The general principle in TCM is to eliminate pathogenic heat from the blood, remove blood stasis, nourish liver and kidney yin. The treatment is based neither on Chinese herbal treatment and acupuncture nor ever including corticosteroids and immunosuppressive drugs.

Conclusion: The conclusion of this study is that autoimmune hepatitis can be treated without the use of corticosteroids and immunosuppressive drugs according to the teachings of traditional Chinese medicine, reducing the side effects caused by these drugs.

Biography

Huang Wei Ling has graduated in Medicine in Brazil, specializing in infectious and parasitic disease, a General Practitioner and Parenteral and Enteral Medical Nutrition Therapist. She was in charge of the Hospital Infection Control Service of the City of Franca's General Hospital, she was responsible for the control of all prescribed antimicrobial medication, and received an award for the best paper presented at the Brazilian Hospital infection Control Congress in 1998. She was coordinator of both the Infection Control and the Nutritional Support Committee in Sao Joaquim Hospital in Franca, and also worked at the infectious Sexually Transmitted Disease Reference Center. She is the owner of the Medical Acupuncture and Pain Management Clinic, and since 1997 she has been presenting her work worldwide concerning the treatment of various diseases using techniques based on several medical traditions around the world.

weilingmg@gmail.com

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Tissue Engineering and Regenerative Medicine

Özlem Vural, J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

GENERATING A 3D HUMAN THYROID MODEL *IN VITRO*

Özlem Vural
Technical University of Berlin, Germany

The thyroid gland plays a crucial role during embryonic development and organogenesis. It further controls the metabolism of various adult organs. Mechanisms that drive thyroid morphogenesis have not been fully elucidated. The inter-follicular extra cellular matrix supports the interaction of the functional units, the thyroid follicles, where thyroid hormone (T3 & T4) biosynthesis takes place. The development of 3D structures *in vivo* requires cell-cell interactions and crosstalk. Thus, we are aiming an imitation of cellular crosstalk in order to acquire functional organoids by culturing primary human thyrocytes in a 3D environment *in vitro*. Isolated human primary thyrocytes are expanded in monolayer culture and cells are seeded in ultra-low attachment plates to allow aggregation and cellular interaction. Within two weeks of *in vitro* culture, primary human thyrospheres restore their transcriptional status similar to the native thyroid. Based on the multi-organ-chip technology, developed by tissue GmbH, the interaction between selected organs can be mimicked. Due to the major impact of thyroid hormone on the metabolism, we want to investigate the interaction and influence between thyroid and organs such as liver or cardiac tissue by emulating the endocrine impact. Furthermore, based on our thyroid model, possible endocrine disruptors can be identified using our *in vitro* test system.

Biography

Özlem Vural studied Biotechnology at Technical University of Berlin. After working as a student assistant on *in vitro* chondrogenesis in the Group of Prof. Dr. Roland Lauster, she started her PhD studies focusing on the generation of a human 3D thyroid model for substance testing. Her research interests include "Human organ models, tissue engineering and thyroid".

oezlem.vural@tu-berlin.de

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Dehghani SN, J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

INDUCTION OF LIVER CIRRHOSIS AND TREATMENT OF CIRRHOTIC LIVER BY MESENCHYMAL STEM CELLS DERIVED FROM ADIPOSE TISSUE IN RAT MODEL

Dehghani SN[1], Haghani I[1], Namazi, F[2], Ghaderi A[3]
Department of Surgery (1) and pathology (2),
School of Veterinary Medicine, Shiraz University, and (3)
Cancer research centre, Shiraz University, Iran.

Liver cirrhosis is a chronic disease which normal liver tissue is replaced by fibrosis and scar leading to liver malfunction. The purpose of this study was to induce cirrhosis in rat as an animal model and treat cirrhosis by Mesenchymal stem cells derived from adipose tissue. 45 adult rats were used in this study. Group 1(30 rats) were treated by the mixture of CCL4 and olive oil for 16 weeks till cirrhosis signs appeared. Group 2 (15 rats) were not treated. Following the confirmation of cirrhosis, under anaesthesia, the linea alba was incised, the Stem cells were injected into the Portal vein. 5 weeks later, the rats were euthanized. Samples of liver tissue were collected for histopathological investigation. They were stained by H&E and Masson trichrome and studied by light microscope. Grossly the Cirrhosis liver appeared, Nodular, Pale and yellowish, with adhesion. Microscopic signs were: Diffused fibrosis, fatty changes, diffused necrosis, heterogeneous hepatic parenchyma. The clinical results of treated rats included: Increased movements, appetite, improved behaviour and decreased abdomen size. The histopathologic results of liver cirrhotic rats treated by stem cells indicated: although different stages of liver fibrosis was observed, however the structural parenchymal lesions were not found and this indicates that liver cells were renewing and regenerating and forming new colonies. In conclusion Liver cirrhosis was induced by IP injection of CCL4. The stem cells were developed from adipose tissue and cirrhotic livers were regenerated by injection of stem cells derived from adipose tissue in the portal vein.

Biography

Dr. Dehghani is a professor of Veterinary Surgery, Dr. Haghani is a graduate student at the department of Surgery, Dr. Namazi is an assistant professor of Pathology, school of Veterinary Medicine, Shiraz University. And Dr. Ghaderi is a professor at the Cancer research centre of the Shiraz University of Medical Science, Shiraz, Iran. His research interest includes Stem Cell and Tissue regeneration.

sdehghan04@yahoo.com

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22nd Edition of International Conference on
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12th Edition of International Conference on
Tissue Engineering and Regenerative Medicine

Liviu Steier, J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

TISSUE REGENERATION AND MAINTENANCE PROTOCOLS FOR PERI-IMPLANT MUCOSITIS AND IMPLANTITIS

Liviu Steier
University of Warwick, Germany

Post implant insertion disease is not uncommon according to recent systematic reviews. Frequency has been classified in relation to affected biologic entity, number of implants and number of individuals involved: peri–implant mucositis affected 63.4% of identified participants compared to 30.7% of implants inserted; peri-implantitis was detected in 18.8% of participants and 9.6% of implants. Different treatment protocols are described in the literature. Critical appraisal of the evidence based upon long term outcome predictability could not sufficiently support and/or favorize particular treatment protocols. The consensus report of the sixth European workshop on periodontology (2008) concluded that there was no evidence that so-called regenerative procedures had additional beneficial effects on treatment outcome when used for peri-implantitis lesions. The consensus report of the tenth European workshop on periodontology (2014) related skin wound healing to oral soft tissue healing both in teeth and implants. The aim of the presentation is to introduce regenerative and maintenance protocols borrowed from wound healing and addressing both implant affected entities: soft tissues and supporting bone. The suggested protocols follow established requests related to the biology of wound healing and modification of the implant surface, application of self-induced regenerative, anti-bacterial and anti-bio adhesion coating.

Biography

Liviu Steier served as Clinical and Course Director of the MSc in Endodontics at University of Warwick. He is Specialist in Prosthodontics and Dental Materials and Specialist in Endodontics. He served as Visiting Professor at University of Florence and Tufts Dental School. He published numerous papers and book chapters. He serves as a Reviewer and editorial board for different scientific journals worldwide. His research interest includes Dental Bio-Material Science.

lsteier@gmail.com

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David R Thomas, J Transm Dis Immun 2018, Volume 2
DOI: 10.21767/2573-0320-C2-005

THE PERILS OF INVISIBLE DISEASE AND LYME RELATED ISSUES

David R Thomas
Lyme disease Advocate, New York

The perils of invisible disease and lyme related issues have brought me full circle in life. I have found that what is perceived as professional medicine has become distorted in the many minds that control medicine, make medicine, deliver medicine and profit from medicine, and finally receive medicine. I have found that so many invisible disease sufferers find themselves ridiculed, shunned from family, society, community and sometimes from the very support system that should have been there when one gets sick. Simply for survival, we find in the Lyme world there is not the understanding that comes from the lack of knowledge that is required by our medical communities to help these sufferers recover. I have found that if you are recognized and diagnosed with known and provable Cancer. The sufferer walks out the door with the Hospital, family support, financial backing that has become more of an industry and profit machine than a professional responsible health system. This is around the world that I talk of. The Lyme issue and associated diseases can replicate many different diseases and mystifies 98% of the world medical communities. We are on the cusp of making great strides in Invisible diseases through new discoveries of this Lyme research. I have said it and published my thought "The Lyme epidemic will not be appreciated until long after it is eradicated."

Biography

David was born a farm boy working toward his dreams until sickness creeps in slowly over the years. He was an Artificial Insemination Technician along with animal health under Vets supervision, farm mechanic, Equipment operator, then truck driver, trouble shooter for different companies as he call it. Then Lyme took his heart and health.

darith1lymee@gmail.com