

10TH SUMMER SCHOOL

SIGRISWIL



DHOTEL SIGRISWIL

WILLKOMMEN

blick





Inflammation, Immunomodulation, Inspiration



— 10th International Summer School

Organizer: UBS Swiss Life Science

Date: August 21-25, 2011
Location: Universität Bern, CH-3012 Bern

Faculty:

- Dr. Cheyenne Drenth
- Dr. Michaela Ederer, University of Bern
- Dr. Barbara Gehrke, University of Bern
- Prof. Antonius Gruber, University of Bern
- Dr. Ulf Hanebeck, University of Regensburg
- Dr. Michael Hämmerle, University of Regensburg
- Prof. Thomas Hämmerle, University of Regensburg
- Dr. Barbara Hämmerle, University of Regensburg



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Department of Pharmacology
<http://www.pki.unibe.ch/>

PKI

From apoptosis to autophagy and beyond

Hans-Uwe Simon, MD, PhD
Professor and Chairman

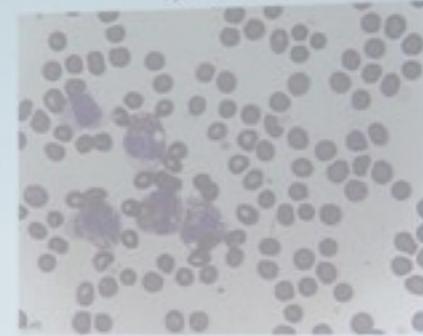
GCB, University of Bern

Sigriswil (CH), August 21-23, 2011



Occurrence of vacuoleformation (1): in vivo

Hypereosinophilic
syndromes







Questions?

"A wise man can learn more from a foolish question than a fool can learn from a wise answer."
Bruce Lee





Poster Session Tonight

- Nohemy: Role of Bok in apoptosis
- Tatiana: Generating basophils *ex vivo*
- Ursina: FasL-induced killing in neutrophils





Siglecs as regulators of human natural killer
cells in health and cancer



Camilla Jandus, 21.08.2011
10th International Summer School, Sigonwil



Allogeneic chitosan nanogel interaction with conventional and plasmacytoid dendritic cell function

U

James M. Saito¹, Yen-Ting Hwang¹, Michael R. Fink¹, Michael J. Dickey¹, Michael J. Lanza¹, Michael J. Lanza¹, Michael J. Lanza¹, Michael J. Lanza¹

¹ Department of Biomedical Engineering, Duke University, Durham, NC, USA

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Thymic stromal lymphopoietin (TSLP) stimulates eosinophils to release mitochondrial DNA and eosinophil cationic protein

PKI

Martina Mordret¹, Shona Younossi¹, Christopher Nobile¹, Maria Clara Simon¹, Dagmar Blasius¹, Institute of Physiology and Biochemistry of the Cell, University of Mainz

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Background

Thymic stromal lymphopoietin (TSLP) is a TSLP member cytokine that is involved in mouse thymus development and in mouse tissue damage after LPS (Lipopolysaccharide). This cytokine is also involved in human diseases such as atopic dermatitis, psoriasis, and allergic rhinitis. In addition, TSLP is involved in the differentiation of dendritic cells and macrophages in the skin and TSLP is also involved in the differentiation of T cells. TSLP is also involved in the differentiation of dendritic cells and macrophages in the skin and TSLP is also involved in the differentiation of T cells.

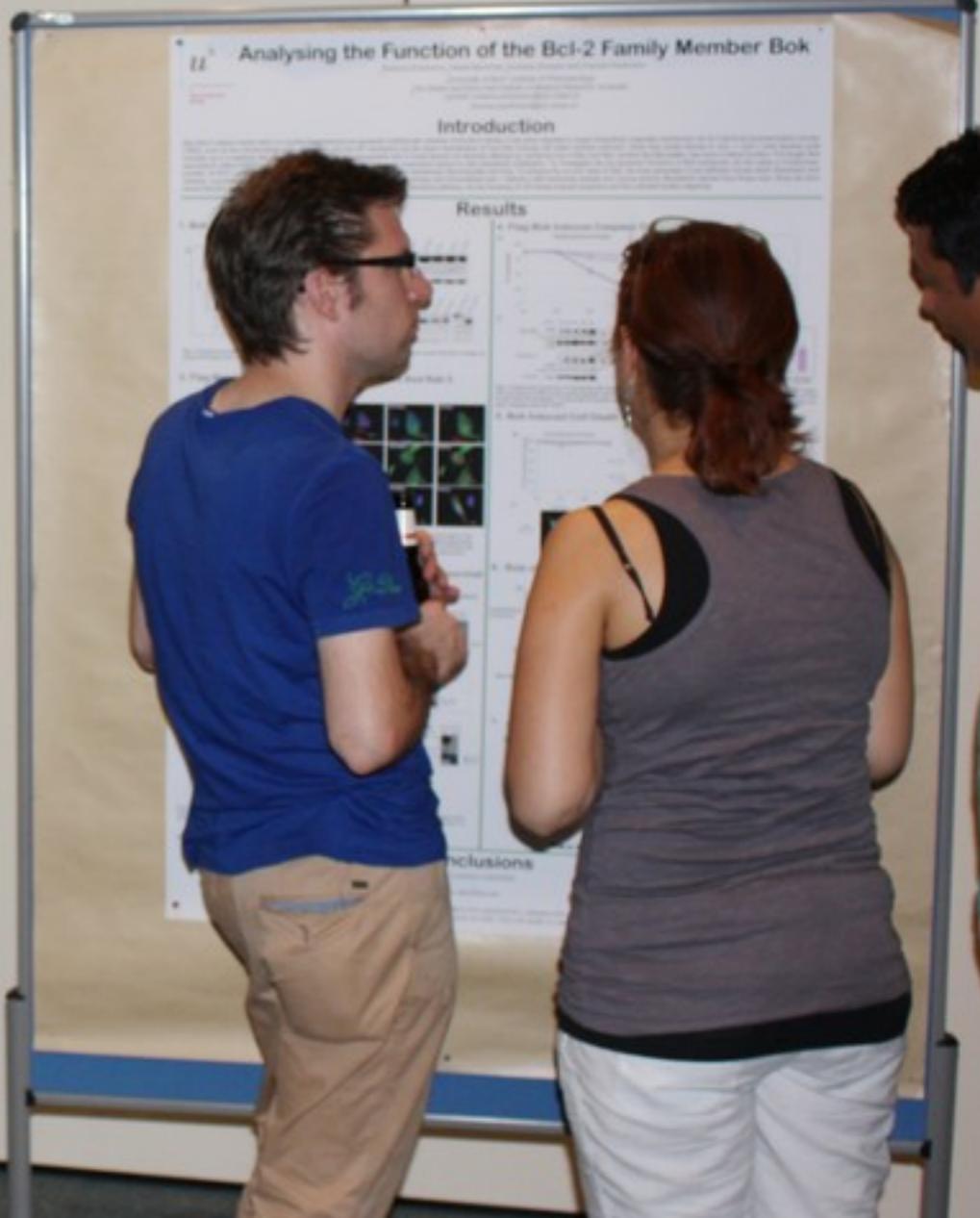
Results

TSLP activates eosinophils to release mitochondrial DNA and eosinophil cationic protein.



Conclusion

TSLP is a key regulator of eosinophil function and it is involved in the differentiation of dendritic cells and macrophages in the skin and TSLP is also involved in the differentiation of T cells.





A System For Quantitative Production Of Murine IL-5
Basophils Ex Vivo

Introduction, Materials and Methods, Results, Conclusion

Abstract

Materials

Methods

Results

Conclusion

Toll-like receptor dependent neutrophil death induced
by the IgA receptor CD89 (Fc α R): novel evidence
for cross talk between the mucosal adaptive and
innate immune system

Introduction, Materials and Methods, Results, Conclusion

Abstract

Materials

Methods

Results

Conclusion

Biomarkers

are most suitable to describe a defined condition in an individual patient





Acknowledgements

Anaesthesiology, University Hospital Ulm, Germany

Marion Schneider

Xuefang Ren

INSERM U955 team 09, Clichy, France

Flavia Castellano

Valerie Molmer-Frenkel



The
Chair in Bioc
Univers

"Extra-adrenal
and tissue-spe



Thiazolides,
GSTP1 and Colon Cancer Cell
Apoptosis

Anette Bräckmann
Ph.D student
Biochemical Pharmacology
University of Constance



International summer school 2011

University
Constance



Wie wärs
mit
etwas
Süßem
aus unserer
Kuchen-









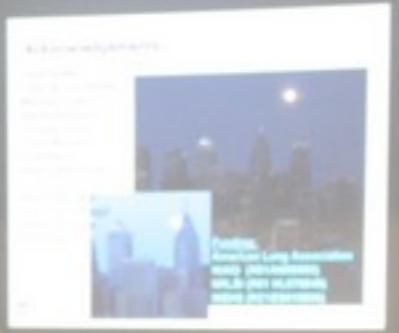
Control of leukocyte trafficking
the chemokine receptor CCR

Daniel Lebler











ARKINA

Universität Bern,
Institut für Pharmakologie
„Summer School“

Lunch

- Buffet of salads
- Cream of apples and ginger soup
- Dices of rump beef (Switzerland) à la Stroganoff
- Rice
- Peas and carrots
- or
- Omelet with stew of chanterelles
- Sorbet Colonel

Monday, 22nd august 2011





Prof. dr. Irena Mlinarič Raščan

New inducers of apoptosis in B lymphoma

Bam, 2011



**Universität Bern,
Institut für Pharmakologie
„Summer School“**

Dinner

*

Smoked Salmon and gravlax
with honey-mustard-dill sauce

Vegetable broth with sherry

Corn feeded chicken breast (France)
with cognac sauce

Polenta

Spinach and tomatoes

or

Roll of sole with safransauce

Puff pastries

Spinach and tomatoes

or

Truffle spaghetti with vegetables

Mousse of melon with salad of ananas

*

Monday, 22nd august 2011





ANTIMICROBIAL ACTIVITY OF THE EPITHELIA-EXPRESSED CHEMOKINE CXCL14

Chen DAC^a, Kathrin Möhlemann^a, Martina Wolf^b
^aHanns-Krüger-Institut^b Institute for Infectious Diseases, University of Bern, Switzerland

Background and Aims

Cxcl14 regulates the recruitment, activation and training of leukocytes during different phases of immune responses. CXCL14 is a member of CXC chemokine family alternatively called SDF-1 for its initial isolation from breast and kidney tissue. It is highly expressed in normal healthy epithelial tissue, but absent from many tumor cells and cancer tissues suggesting a role in anti-tumour immunity. On the other hand, CXCL14 is a chemokine factor for human T-cell lymphocytes and may have a function in the homeostasis of skin dendritic cells. Up to now no conclusive biological CXCL14 is known. Recently, we found that CXCL14 exhibits a broad spectrum antimicrobial activity against Gram-positive and Gram-negative bacteria, on different types of epithelial and non-epithelial cell lines. CXCL14 exhibits a higher antimicrobial activity compared to synthetic CXCL14. The mechanism of action of CXCL14 on bacteria is not clear yet. In this study we will further investigate selectivity and mechanism of antimicrobial activity of CXCL14.

Aim 1: Selectivity and mechanism of antimicrobial activity of CXCL14.

To investigate antimicrobial activity and selectivity of CXCL14 we will use different bacterial strains and different concentrations of CXCL14.

Dependent on the results, we will further investigate the mechanism of antimicrobial activity of CXCL14.

Aim 2: Identification and characterization of the active site of CXCL14.

To identify the active antimicrobial active site of CXCL14 we will use mutagenesis techniques according to protein wise deletion analysis, point mutation analysis and interaction with hydrophobic antibiotics.

Plastics with antimicrobial activity will be identified by screening of a library of CXCL14 mutants.

Materials and Methods

Pathogens and microorganisms: *Candida albicans* (ATCC 10231), *Escherichia coli* (ATCC 25922), *Staphylococcus aureus* (ATCC 25923), *Salmonella enterica* (ATCC 14028), *Yersinia enterocolitica* (ATCC 13099), *Pseudomonas aeruginosa* (ATCC 27853).

Cell lines: HEK293T (kindly provided by Dr. Christiane Schmid, Hanns-Krüger-Institut) and HEK293T cells expressing CXCL14 (kindly provided by Dr. Christiane Schmid, Hanns-Krüger-Institut).

Antimicrobial assays: MIC (Becton Dickinson, Franklin Lakes, NJ) was determined by the microdilution method. Briefly, 100 µl of each culture medium (PM2 or RPMI) containing 100 µg/ml blood (from healthy volunteers) were placed in a 96-well plate. Serial dilutions of CXCL14 were performed in triplicate in a final volume of 100 µl in medium. Bacteria were diluted in a final volume of 100 µl with peptone for 30 min at 37 °C. Assays were carried out in triplicate. After 24 h of incubation, the growth of surviving bacteria was determined as CFU/ml and the minimum inhibitory concentration (MIC) was calculated. Cells were incubated for 10 min with CXCL14 (100 µg/ml) and then treated with 0.1% Triton-X-100. Cells were identified by staining with crystal violet solution and measured by a TECAN plate reader.

Statistical analysis: Statistical significance was determined by the Student's *t*-test.





The roles for phosphoinositide-3-kinase gamma and DOCK2 proteins during T cell – dendritic cell interactions

Kathrin Gollmer, Markus Pieczyk and Jens V. Stein

Abstract:
The activation of T cells requires first interaction with antigen presenting cells such as dendritic cells (DCs) or the T cell subset of secondary lymphoid organs including lymph nodes. Therefore, the migration capacities of DCs and T cells within the lymph node parenchyma are essential for the induction of an adaptive immune response [1]. The PI3Kgamma gene product PI3Kgamma [2] and the phosphoinositide 3 kinase gamma (PI3Kγ) were proven to control lymphocyte migration in a largely non-autonomous manner [3]. Furthermore, an in vitro study showed that DOCK2 is involved in transmembrane receptor and T cell receptor (TCR) triggered PI3Kγ activation [4].

Based on these findings, T cell receptor crosslinking (CD3ε-ICAM) was used to study the role of DOCK2 and PI3Kγ in DC-T cell visibility in the lymph node parenchyma and its interaction with DCs. Furthermore the in vivo activation capacity of DOCK2 and PI3Kγ upon TCR/T cell was investigated.

Materials

For CD3ε-ICAM, SDS gel polyacrylamide (4-12%), mouse anti-differential marker (DOCK2, PI3Kγ, CD3ε), rabbit IgG (anti-mouse DOCK2, PI3Kγ), horseradish peroxidase (HRP)-conjugated goat IgG against mouse IgG and HRP-conjugated goat IgG against rabbit IgG (all from Santa Cruz Biotechnology), biotinylated goat IgG against mouse IgG (Biotin-X-Goat IgG, Jackson Immuno Research), streptavidin-alkaline phosphatase (Sigma-Aldrich), alkaline phosphatase substrate (Sigma-Aldrich), Pierce Western blotting analysis kit (Thermo Fisher Scientific), Pierce Bradford protein assay (Thermo Fisher Scientific), Pierce Coomassie protein assay (Thermo Fisher Scientific), Pierce PEG precipitation kit (Thermo Fisher Scientific), Pierce PEG fractionation kit (Thermo Fisher Scientific), Pierce PEG column (Thermo Fisher Scientific) and Pierce PEG column filter (Thermo Fisher Scientific).

Fig. 1 Experimental setup



Fig. 2 Role of DOCK2 and PI3Kγ in DC-T cell visibility in the lymph node parenchyma
and its interaction with DCs

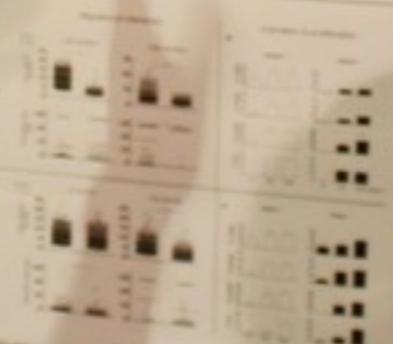


Fig. 3 Role of DOCK2 and PI3Kγ in DC-T cell visibility in the lymph node parenchyma
and its interaction with DCs







immune cell entry into the immunologically privileged CNS - Conquest of a castle

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University of Bern
Switzerland





B-lab



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University of Bayreuth
Faculty of Education
B-Lab

Theodor Kocher Institute

Mathias Baumann
Tiziana Cremona
Stephan Hirschi
Elisabeth Frei



AERO



10th INTERNATIONAL SUMMER SCHOOL
Inflammation, Immunomodulation,
Inspiration

Genetic Modification of Laboratory Mice
Of KOs, Reporters, Overexpressors

Urban Deutsch
Theodor Kocher Institute
University of Bern





RESERVIERT

Universität Bern, Institut für Pharmakologie
„Summer School“

Dienstag, 23. August 2011



Signarelli, 23.06.2011

*Decrease in VEGF expression leads to
intussusceptive vascular pruning*

Ruslan Hlushko

Group of Prof. Valente Di Cesare
Institute of Anatomy
University of Bern
Bern, Switzerland







The role of RhoH/TTF in c... and development

Christina Mierz-Grabickle

Institute for Pharmacology
University of Bern, Switzerland

















Ausfahrt