PERFORMANCE REPORT 2009

Institute of Specific Prophylaxis and Tropical Medicine
at the
Center for Pathophysiology, Infectiology & Immunology,
Medical University of Vienna
www.meduniwien.ac.at/tropenmedizin

Head:
Univ. Prof. Dr. Ursula Wiedermann-Schmidt, MD, PhD
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Ambulanz (im Bau befindlich)

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Patientenversorgung

Epidemiologie
und Reisemedizin

Exp. Tropenmedizin
& Feldforschung

Molekulare Mikrobiologie

Molekulare Parasitologie

Okuläre Entzündungen
& Infektionen

Vakzinologie & Immunologie

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Epid. u. Diagn.
v. (Helmintho-)
Zoonosen
Profile and Mission Statement

The Institute of Specific Prophylaxis and Tropical Medicine (ISPTM), founded in 1972 as an independent institute at the medical faculty, is nowadays member of the Center for Pathophysiology, Infectiology and Immunology at the Medical University Vienna. It delivers and educates practical and theoretical view points of vaccinology and problems of infectious diseases in tropical as well as westernized countries. Information and advices for national and international vaccinations, guidelines for vaccination schedules, and differential diagnosis of diseases from returning travellers are routinely performed.

In June 2009 the division of Medical Parasitology, previously part of the Institute of Hygiene, joined the Institute contributing synergistically with respect to diagnosis and research to the working field of the Institute. With addition of this parasitological unit the ISPTM now holds two national reference centers of the Ministry of Health, the Reference Center for Parasitosis (i.e. toxoplasmosis, echinococcosis, toxocarosis and other parasitic diseases) and the Reference Center for Vaccinology, Travel- and Tropical Medicine. Additionally the ISPTM offers Austria-wide the only training program for medical doctors to specialize in the field of Specific Prophylaxis and Tropical Medicine. Furthermore education programs in the fields of infectiology, immunology and parasitology for diploma and PhD-Students at the Medical University and at the University of Natural Sciences are performed.

The Department’s research activities spotlight the following topics (in alphabetic order):

I. Epidemiology and Diagnostics of Helminthozoonoses
II. Epidemiology and Travel Medicine
III. Experimental Tropical Medicine and Field Research
IV. Malaria & Diagnostics
V. Molecular Microbiology
VI. Molecular Parasitology
VII. Vaccinology and Immunology

I. Epidemiology and Diagnostics of Helminthozoonoses
The main topic of this unit is devoted to epidemiology, i.e. incidence, prevalence and geographic distribution of helmintho-zoonoses (distribution of cystic and alveolar echinococcosis, Toxocara infestations etc) in Austria and epidemiological evaluation of cutaneous dirofilariosis in Central Europe.

II. Epidemiology and Travel Medicine:
This unit has established an Austrian-wide surveillance system for vaccine-preventable infectious diseases in children and adults. Epidemiological data from these studies impact on the Austrian recommendations for vaccination of the Austrian Supreme Board of Health. In cooperation with international vaccine companies vaccination trials (phase III/IV studies) in the field of infectiology and allergology are performed.
III. Experimental Tropical Medicine and Field Research:
This unit operates field sites throughout South- and Southeast Asia focusing on new therapeutic options for treating tropical diseases, drug development, development of new diagnostic assays, and epidemiology of drug resistance and tropical diseases

IV. Malaria & Diagnostics
Research activities focus on drug resistance against malaria and the evaluation of new combinations of anti-malaria drugs in SO-Asia (Thailand, Burma, and Cambodia). Furthermore, different plant derived substances are tested using in vitro screening technology for their potential use as new anti-malarial substances.

V. Molecular Microbiology and Parasitology:
This unit uses biochemical and molecular biological methods to study open problems related to pathogenic microorganisms. Research aims to develop new chemotherapeutics and elucidate the mechanism of action of currently used ones, to study parasite antigens and host-parasite interactions. The implementation of PCR-based diagnostic methods for complicated cases is a new major focus

VI. Molecular Parasitology:
This unit concentrates on protozoan pathogens, in particular on acanthamoebae aiming to elucidate their pathomechanisms. Major aims are the differentiation between strains and the characterisation of potential virulence factors. A further research task is the finding of new anti protozoan compounds.

VII. Vaccinology & Immunology:
The research programs focus on immunoprophylaxis and vaccination against infectious diseases, allergies and cancers, the development and validation of novel vaccine candidates and antigen delivery systems, and the assessment of immediate and memory immune responses as well as vaccination failure after immunization. Vaccine development from bench to bedside in cooperation with clinical departments is performed with support of international vaccine companies.

1. Structure:
The Institute is structured into 7 research units and 1 patient-orientated unit (outpatient clinic [in progress] and diagnostic unit):

A. Epidemiology and diagnostics of (helmintho) zoonoses:
(unit leader: Herbert Auer, MSc, PhD)

- Incidence, prevalence and geographic distribution of cystic and of alveolar echinococcosis in Austria
- Incidence, prevalence and geographic distribution of Toxocara infestations and of toxocarosis (VLM, OLM, covert toxocarosis, common toxocarosis, neurotoxocarosis) and ascariosis (VLM) in Austria
• Clinical spectrum of toxocarosis
• Strain differentiation of cystic echinococcosis cases
• Incidence, prevalence and geographic distribution of cutaneous dirofilariosis in Central Europe
• Incidence, prevalence and geographic distribution of fasciolosis in Austria
• Incidence, prevalence and geographic distribution of cysticercosis in Austria
• Development and establishment of quantitative PCR for *Cryptosporidium* and *Giardia lamblia*

B. Epidemiology and Travel Medicine:
(unit leader: Herwig Kollaritsch, MD)

• Epidemiology of vaccine-preventable diseases and seroprotection studies
• FSME, hepatitis B, hepatitis A: evaluation of long-term efficacy of vaccination
• Long-term evaluation (until 2012) of immune responses and protection in former non-responders vaccinated with a new preS1/S2 hepatitis B vaccine
• Surveillance study of hospitalized invasive pneumococcus infections in Austria; influence of the national vaccination program for infants on the incidence of diseases
• Prospective study on antigen variance of *Bordetella pertussis* (Pertactin, Pertussistoxin)
• Immunogenicity and tolerability of an inactivated Japan B Encephalitis vaccine (multicenter phase III trial)

C. Experimental Tropical Medicine and Field Research:
(unit leader: Harald Noedl, MD, PhD)

• M A R I B (Malaria Research Initiative Bandarban) – tropical disease research center in Southeastern Bangladesh;
• Randomized, controlled, Phase II/III GCP clinical trials with novel combination therapies for the treatment of uncomplicated falciparum malaria in Thailand and Bangladesh;
• Artemisinin resistance in Cambodia, GCP clinical trial, collaboration with USAMC-AFRIMS, Bangkok;
• Antimalarial drug resistance monitoring throughout South- and Southeast Asia
• Development of novel ELISA-based assays for measuring *P. vivax* biomass as an indicator of parasite growth and its inhibition;

• Preclinical drug development and *in vitro* antimalarial activity of novel drugs; 2D and 3D quantitative structure activity relationship (QSAR) studies; identification of candidate drug targets in 2D-gels, collaboration with P. Chiba, Institute of Medical Chemistry

• Drug interaction studies with azithromycin, lumefantrine, and artemisinin derivatives;

D. Malaria & Diagnostics
(unit leader: Walter Wernsdorfer, MD, Guest Professor)

• Monitoring of currently used anti-malaria drugs in cooperation with the Malaria Clinic of Mae Sot, Tak Province, Thailand

• *In vitro* evaluation of synergism and pharmacodynamic interaction of different antimalarial drugs (artemisinin, mefloquine, lumefantrin, Monodesbutyl-Benflumetol etc)

• Interaction studies *in vitro* of anti-malaria drugs with retinol

• Screening for new plant-derived anti-parasitic drugs (eurycanome, epoxy- eurycomanone and selected analogues of these compounds)

• WHO-Assignment: evaluation of malaria eradication in N-Africa by the WHO Expert Panel of Malaria

E. Molecular Microbiology:
(unit leader: Michael Duchêne, PhD)

• Chemotherapy against *E. histolytica*: investigation of the mechanism of action of metronidazole on the molecular level

• Diagnosis of *E. histolytica* - *E. dispar*: differentiation of pathogenic and non-pathogenic forms of entamoeba in stool samples by means of PCR technology

• *Entamoeba histolytica*: Characterization of antigenic structures, use for vaccine development; mimotope technology

• *Acanthamoeba castellani*: molecular processes during encystation and excystation

• *Bordetella pertussis*: examination of strain variation on the molecular biological level
- Antiprotozoal chemotherapy using substances derived from rainforest plants
- Immunomodulatory factors of *E. histolytica*: isolation and immunological characterization of factors with immunosuppressive or lytic capacities
- Moth allergens: characterization and isolation of allergens; recombinant production of the relevant allergens

**F. Molecular Parasitology**
(unit leader: Julia Walochnik, PhD)
- *Acanthamoeba* encystment – comparative proteomics: molecular processes during encystation and excystation in *Acanthamoeba castellani*, genotype T4
- *Acanthamoeba* proteins and proteases and their role in virulence: complement-binding proteins, protease activity assays
- *Acanthamoeba* glycomics: identification of *Acanthamoeba* glycan and comparative analyses between groups and genotypes
- Molecular phylogeny of the amoebozoans: maintainance and extension of strain collection, sequencing, computer-based sequence analyses, tree-building
- Genotyping of parasitic protozoans: sequence based differentiation of *Acanthamoeba* groups and strains; *Leishmania* strain differentiation; identification of clinical isolates
- Amoebae as reservoirs and vehicles of bacteria, fungi and viruses: screening of water samples; sequence-based identification of involved strains, cocultivation assays
- Anti-protozoan activity of new plant-derived compounds: *in vitro* efficacy assays (EC90ies, EC50ies), cytotoxicity assays; *in vivo* models
- Anti-microbial activity of animal-derived anti-septicals: investigation of frog foam
- New anti-trichomonad compounds and their modes of action: efficacy and long term resistancy studies, drug effect on protein expression (protein and gene level)
G. Vaccinology and Immunology:
(unit leader: Ursula Wiedermann-Schmidt, MD, PhD)
Establishment of new treatment strategies against vaccine preventable diseases
(experimental studies; animal models):
  • New antigen-delivery systems and adjuvants for mucosal and needle-less vaccination:
  • Use of mucosal adjuvants for enhanced immunogenicity of nasal and oral vaccines
  • Immunological tolerance as vaccination strategy against immunological hyperresponsiveness
  • Development of polyvalent allergy vaccines: development of novel allergen-chimers for nasal or oral vaccination against multisensitivities
  • Host-parasite interaction and immunomodulation \((\text{helminths}; \text{Toxoplasma gondii})\)
  • Co-infections and immune/vaccine responsiveness
  • Development and immunological validation of cancer vaccine candidates (breast cancer, melanoma)

Human studies in vaccinology
  • Cellular and humoral immune responses in responder and non/low-responder vaccinees
  • Immunological mechanisms of non-responsiveness upon vaccination
  • Longterm protection (humoral and cellular markers) after routine vaccination

H. Patient-orientated unit (head: U. Wiedermann-Schmidt, MD, PhD)
**Outpatient Clinic for Vaccination, Travel and Tropical Medicine: (in progress)**
An outpatient clinic for vaccination according to national and international guidelines and diseased returning travellers is currently in establishment – in particular this clinic shall focus on vaccination of risk patients, such as immunocompromised-, oncological-, allergic patients, pregnant women, patients with autoimmunity or chronic diseases. Individual information, counselling and management of vaccination, as well diagnosis and therapy of diseased travellers returning from tropical countries will be performed. For in-patient treatment a cooperation with the Department of Internal Medicine I (Division of Infectious Diseases & Clinical Tropical Medicine) at the General Hospital Vienna (AKH) has been established.
With October 2008 the Institute was nominated as “Austrian Reference Center for Vaccinology, Travel- und Tropical Medicine” of the Ministry of Health. In this function the Institute is authorized to generate national recommendations for travel vaccination and malaria chemoprophylaxis/therapy.

In June 2009 the Division of Medical Parasitology was incorporated into the Institute contributing with a significant enlargement of the diagnostic and research repertoire. Additionally the Institute is now also assigned as National Reference Center for Parasitoses.

**Diagnostic Laboratory for Serology, Tropical Diseases and Parasitology**

Austrian Reference Center for Diphtheria-Tetanus and Pertussis-serology:
Measurement of antibody titers against Diphtheria, Tetanus and Pertussis according to WHO standards; management of serum sample archives and administration of databank.

Diagnosis of Malaria and *status febrilis* in returning travellers is routinely performed (microscopy, quick test, PCR). Since 2009 a wide spectrum of parasitological diagnosis can be offered, such as coprological, serological, molecular biological analysis of helminths, Cryptosporidiae, Giardia, Leishmania, Toxoplaama gondii etc. Around 10.000 parasitological analyses and 2500 serological titer analyses are yearly performed. The diagnostic laboratory unit is yearly evaluated and certified according to ISO 9001 criterica.

### 2. Working profile of the Institute

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research/Diagnostics/Patients</td>
<td>62</td>
</tr>
<tr>
<td>Lectures</td>
<td>28</td>
</tr>
<tr>
<td>Administration</td>
<td>&gt;10</td>
</tr>
</tbody>
</table>

### 3. Personnel of the Institute

Currently, 72 persons are working at the ISPTM, less than 50% employed by the University budget, the other >50% funded by research grants.
**Personnel employed by the University ("Planstellen")**

1 University Professor (100%), 5 associate Professors (100 %), 1 associate Professor (50 %), of whom 4 are medical doctors (3 are Specialists for Specific Prophylaxis and Tropical medicine, 1 is specialist in Ophthalmology).

1 assistant physician (100%) (FA Internal medicine; Specific Prophylaxis & Tropical Medicine)

3 administrative persons (50 %)

1 administrative person (75 %)

7 technicians (100 %)

4 technicians (50 %)

**Personnel employed by grants or external sources**

1 guest professor

1 professor emer.

4 Post docs, 6 PhD students, 9 Diploma students, 3 MD students

2 Doctor in training

3 technicians (100 %)

6 project employees

1 administrative person (50 %) 1 administrative person (100 %)

**Employees who left the Institute 2009: 10**

2 persons: retired

2 persons: maternity leave

1 person: finished medical education

1 person: finished diploma study

5 persons: job change
Gender Distribution ISPTM

Medical University personal: acad.  Medical University personal: non-acad.

Grant personal: acad.  Grant personal: non-acad.

<table>
<thead>
<tr>
<th>Identification and source of support</th>
<th>Title and head of project and cooperation partners</th>
<th>Duration of research project</th>
<th>Total sum of grant (€)</th>
<th>Aliquot for 2009 (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>§ 27 62300001 (KV)</td>
<td>Serologie</td>
<td>2009</td>
<td>78.081.91</td>
<td>49.202.60</td>
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<tr>
<td>§26 ÖNB – AP12226ONB</td>
<td>Genet. Typisierung d. Keuchhustenerregers Bordetella Pertussis bei österr. Patienten</td>
<td>2007 - 2009</td>
<td>45.000.00</td>
<td>0,00</td>
</tr>
<tr>
<td>§ 26 Orphanidis</td>
<td>Effekte von Miltefosin auf Protozoen</td>
<td>2006 – 2009</td>
<td>20.000,00</td>
<td>1.582,87</td>
</tr>
<tr>
<td>§27 Nestlé – FA623A0203</td>
<td>Prenatal and perinatal intervention against allergic diseases</td>
<td>05.2007 – 11.2009</td>
<td>246.602,00</td>
<td>69.263,14</td>
</tr>
<tr>
<td>§26 SFB-Project F01814</td>
<td>„Mucosal tolerance induction: a strategy for prevention and therapy of type I allergy“.</td>
<td>02/2005-02/2012</td>
<td>732.080.00</td>
<td>109.650,00</td>
</tr>
<tr>
<td>§27 FFG Bridge 814280</td>
<td>Wirkprofil pflanzlicher Naturstoffe bei pathogenen Protozoen</td>
<td>2007 - 2010</td>
<td>183.900,00</td>
<td>54.392,00</td>
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<tr>
<td>§27 Baxter AG</td>
<td>Vero-cell influenza vaccine – H5N1 Studie</td>
<td>2007 - 2010</td>
<td>590.000,00</td>
<td>250.000,00</td>
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<tr>
<td>§26 WFF P18350-Bo2</td>
<td>New assays for <em>P. vivax</em> drug and vaccine development</td>
<td>2006-2009</td>
<td>156.302,00</td>
<td>52.100,00</td>
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<tr>
<td>§26 FWF P19044</td>
<td>Encystment and Excystment in <em>Acanthamoeba castellani</em>: RNA and protein expression I differentiating cell</td>
<td>2006-2009</td>
<td>372.960,00</td>
<td>6.195,03</td>
</tr>
<tr>
<td>§27 Intercell</td>
<td>Infektionsepidemiologie von streptococcus pneumoniae</td>
<td>2008 - 2009</td>
<td>35.596,00</td>
<td>14.238,40</td>
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<tr>
<td>§27 Baxter</td>
<td>Charakterisierung von humoraler und zellulärer Immunantwort von Low und High Respondern nach FSME Impfung</td>
<td>2008 - 2010</td>
<td>150.000,00</td>
<td>30.000,00</td>
</tr>
<tr>
<td>§27 MARIB</td>
<td>Azithromycin combination therapy for the treatment of uncomplicated falciparum malaria in Bangladesh</td>
<td>2008 - 2009</td>
<td>60.794,00</td>
<td>45.346,00</td>
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<tr>
<td>§27 Pharmacon</td>
<td>Action Concept for the Development of Novel Therapeutic Agents against Malaria</td>
<td>2008 – 2010</td>
<td>84.000,00</td>
<td>21.000,00</td>
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<tr>
<td>§26 ÖNB</td>
<td>Effect of national rotavirus and pneumococcus vaccinations on disease incidence</td>
<td>2008 – 2010</td>
<td>52.000,00</td>
<td>18.000,00</td>
</tr>
<tr>
<td>§ 27 Baxter</td>
<td>A prospective non-interventional observational Study to Assess the safety of two vaccinations of a vero cell-derived, whole virus H1N1 Pandemic Influenza Vaccine</td>
<td>2009 – 2010</td>
<td>1.650.000,00</td>
<td>25.000,00</td>
</tr>
<tr>
<td>§ 27 Baxter</td>
<td>A prospective non-interventional observational Study to Assess the safety of two vaccinations of a vero-cell derived, whole Virus H1N1 Pandemic Influenza Vaccine in subjects exposed to the vaccine through polivies by Governments or Health Authorities</td>
<td>2009 – 2010</td>
<td>200.000,00</td>
<td>0</td>
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<tr>
<td>§27 Baxter</td>
<td>H5N1 vaccine in healthy adults</td>
<td>2009 – 2010</td>
<td>180.000,00</td>
<td>81.180,00</td>
</tr>
<tr>
<td>§ 27 Lumavita AG</td>
<td>Wirkmechanismus von Pentamycin</td>
<td>2009 – 2010</td>
<td>28.982,00</td>
<td>14.491,00</td>
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<tr>
<td>§ 27 794HP001 (KV)</td>
<td>Parasitologie</td>
<td>2009</td>
<td>587.791,03</td>
<td>306.969,00</td>
</tr>
</tbody>
</table>
5. Lectures and Education activities

Information and Education at the ISPTM
1-3 x per month seminars held by members of the Institute or guest speakers
1 x per month meeting of unit leader for information exchange
1 x per week lab meetings and progress reports held by unit leaders and research group members

Lectures held by the ISPTM
SSM3: Methodenseminar Impfwesen und Tropenmedizin/ 2 x 15 Std
Seminar Funktionelle Pathologie/2 Stunden
Block 8: Abwehr von Infektionen: Wirt-Parasitinteraktion/ 2 Std.
Block 8: Grundlagen des Impfwesens/ 1 Std.
Block 21: Grundlagen der Reisemedizin/1 Std.
Block 22: Gesundheit, Umwelt, Berufs- und Zivilisationskrankheiten – Rechts- und Gesundheitswesen, Strahlenschutz
Vorlesung: Highlights aus der Tropenmedizin: from Bench to Bedside/1 Stunde
Seminar: Einführung in die Grundlagen der Statistik und des wissenschaftlichen
Arbeitens für Tropenmediziner/1 Std.
Basisvorlesung Immunologie/4 Vostd. (im Rahmen des PhD Programmes
„Immunologie“)
Journal Club und Progress Report, 2 Std.
Seminar: Medizinisch-parasitologisches Praktikum und Seminar, 3 Std.
Vorlesung: Medizinische Entomologie – Hygienerelevante Umweltmikrobiologie,
Schwerpunkt Wasserparasitologie, 1 Std.
Seminar: Wissenschaftliche Arbeiten, 4 Std.
Seminar: Parasitologisches Dissertantenseminar, Grundlagen der molekulare
Parasitologie, 2 Std.
Block 9: Krankheit, Manifestation und Wahrnehmung, allgemeine
Arzneimitteltherapie, 3,5 Std.
Journal Club und Progress Report, 2 Std
Seminar: Parasitologisches Seminar, 3 Std.
Vorlesung: Parasitäre Infektionen – Immunbiologie und Immundiagnostik parasitärer
Infektionen, 1 Std.
Seminar: Spezielle diagnostische Fertigkeiten – 7. Semester, 1 Std
Seminar: Medizinische Parasitologie, 2 Std
Vorlesung: Helmintonozenosen in Mitteleuropa: Epidemiologie, Klinik, Diagnose

In medical training for Specialist in Specific Prophylaxis and Tropical Medicine
Bernhard Haberfellner, MD (* finalized 2009)
Maria Paulke-Korinek, MD
Claudia Seidl-Friedrich, MD
Peter Starzengruber, MD
Angelika Wagner, MD

Diploma Thesis and Doctoral Thesis- Students:
Florian Astelbauer, PhD Student (FH)
Führer, Hans Peter, PhD Thesis
Oliver Graf, Diploma student (Medicine)
Michaela Haider, Diploma student (Genetics und Microbiology)
Verena Hofecker, Diploma student (Medicine)
Elisabeth Hoflehner, PhD Student (Genetics und Microbiology)
Mariella Jung, Diploma student (Medicine)
Martina Köhsler, Postdoc (Zoology)
Markus Kranzler, Diploma student (Anthropology)
Kerstin Liesinger, Diploma student (Anthropology)
Maria Paulke-Korinek, PhD-Student (Medicine)
Verena Pecavar, Diploma student (Anthropology)
Wilawan Pumidonming, PhD Student (?)
Ute Scheikl, Diploma student (Anthropology)
Anja Siedl, Diploma student (Medicine)
Michael Syrowatka, Diploma student (Genetics und Microbiology)
Sylvia Tippl, Diploma student (Genetics und Microbiology)
Paul Swoboda, Postdoc (Medicine)
Matthias Vossen, MD student (Medicine)
Angelika Wagner, PhD Student (Medicine)
6. Publications (peer reviewed) 2009:

<table>
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<tr>
<th>Impact Factor (IP)</th>
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<th>IP correspondence</th>
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<tr>
<td><strong>Total number 2009</strong></td>
<td>129,744</td>
<td>101,268</td>
</tr>
<tr>
<td><strong>IP/Acad. Pos</strong></td>
<td>98,47</td>
<td>96,611</td>
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</table>

**Publication list of the Institute 2009 (in alphabetic order)**

**Peer-reviewed journals:**


**SUMME IPF: 129,744**

**corr. IPF: 101,268**

Other publications (non-peer reviewed):


Books and Book chapters:


Individual working reports

(in alphabetical order)
I Epidemiology and Diagnostics of Helminthozoanoses

Unit leader: Herbert Auer, AssProf, MSc, PhD

Co-workers:
Renate Schneider, BMA
Susanne Suhendra, BMA
Motahhareh Gerami-Nejad, BMA

1. Research interests:
- Incidence, prevalence and geographic distribution of cystic and of alveolar echinococcosis in Austria
- Incidence, prevalence and geographic distribution of Toxocara infestations and of toxocarosis (VLM, OLM, covert toxocarosis, common toxocarosis, neurotoxocarosis) and ascariosis (VLM) in Austria
- Clinical spectrum of toxocarosis
- Strain differentiation of cystic echinococcosis cases
- Incidence, prevalence and geographic distribution of cutaneous dirofilariosis in Central Europe
- Incidence, prevalence and geographic distribution of fasciolosis in Austria
- Incidence, prevalence and geographic distribution of cysticercosis in Austria
- Development and establishment of quantitative PCR for Cryptosporidium and Giardia lamblia

2. Research programs:
- Registration and documentation of alveolar echinococcosis and cystic echinococcosis in Austria
- Genotyping of E. granulosus strains
- Registration and documentation of toxocarosis
- Registration and documentation of cutaneous dirofilariosis in Austria (project with Hungary)
- Seroepidemiological studies on the prevalence of E. multilocularis and of Toxocara infections in exposed population groups (veterinarians, soldiers)
- ÖAD-Project (HU 01/2009)
3. Publications:

Abstracts


Reviews


Short report


Original papers


Gesamt IPF: 6,888  corr. Author IPF: 0,857
4. Cooperations:

International:

Eva Fok, Olga Jacso: Faculty of Veterinary Science, Department of Parasitology and Zoology, Szent István University, Budapest, Hungary; ÖAD-Projekt (Nr. HU 01/2009)

István Kucsera: National Center for Epidemiology, Department of Parasitology, Budapest, Hungary; (ÖAD-Projekt (Nr. HU 01/2009)

Fernando Simon: Laboratory of Parasitology, Faculty of Pharmacy, University of Salamanca. Avda. Campo Charro, s/n. 37007 Salamanca, Spain.

Claudio Genchi: Dipartimento di Patologia Animale, Igiene e Sanità Pubblica Veterinaria, Section of General Pathology and Parasitology, University of Milan, 20133 Milan, Italy.

Thomas Romig: Department of Parasitology, University of Hohenheim, Emil-Wolff-Str. 34, 70599 Stuttgart, Germany.

Ingrid Reiter-Owona: Institut für Parasitologie, Universitätsklinikum Bonn, Sigmund-Freud-Straße 25, 53105 Bonn

National:

ao Univ.-Prof. Dr. Talin Barisani-Asenbauer, Universitätsklinik für Augenheilkunde und Optometrie, Währinger Gürtel 18 – 20, 1090 Wien

ao. Univ.-Prof. Dr. Bernd Gollackner, Klinische Abteilung für Gefäßchirurgie, Universitätsklinik für Chirurgie, Währinger Gürtel 18 – 20, 1090 Wien

ao. Univ.-Prof. Dr. Elisabeth Presterl, Klinische Abteilung für Infektionen und Tropenmedizin, Universitätsklinik für Innere Medizin I, Währinger Gürtel 18 – 20, 1090 Wien

ao. Univ.-Prof. Dr. Martin Schindl, Klinische Abteilung für Transplantation, Universitätsklinik für Chirurgie, Währinger Gürtel 18 – 20, 1090 Wien

ao. Univ.-Prof. Dr. Johann Wojta, Klinische Abteilung für Kardiologie, Universitätsklinik für Innere Medizin II, Währinger Gürtel 18 – 20, 1090 Wien

5. Grants and 3rd party funds

no grants 2009

Income diagnostics 2009: 306.969,00
6. Lectures

Seminar: Medizinisch-parasitologisches Praktikum und Seminar, 3 Std.
Seminar: Wissenschaftliche Arbeiten, 4 Std.
Seminar: Parasitologisches Dissertantenseminar, Grundlagen der molekulare Parasitologie, 2 Std.
Block 9: Krankheit, Manifestation und Wahrnehmung, allgemeine Arzneimitteltherapie, 3,5 Std.
Journal Club und Progress Report, 2 Std
Seminar: Parasitologisches Seminar, 3 Std.
Vorlesung: Parasitäre Infektionen – Immunbiologie und Immundiagnostik parasitärer Infektionen, 1 Std.
Seminar: Spezielle diagnostische Fertigkeiten – 7. Semester, 1 Std

7. International Exchange

- 

8. Referee activity, Editor
Helminthologia
Parasitology Research

9. Referee activity, Reviewer
Parasitology Research
Helminthologia
Folia Parasitologica
Revista do Instituto de Medicina Tropical de Sao Paulo
Journal of the German Society of Dermatology
Helminthology
American Journal of Tropical Medicine and Hygiene
10. Congresses and presentations

Invited Lectures

ÖGTP-Fortbildung, Billrothaus, Wien, „Parasiten als Reiseandenken“, 27. 1. 2009

Giftiger Dienstag, Wr. Ärztekammer, Wien, „Würmer, an die in Österreich denken muss“, 17. 2. 2009

Tropenmedizinisches Seminar, Wien, „Würmer in Mitteleuropa - medizinisch relevant?“, 25. 3. 2009


Dermatologie-Fortbildung, AKH, Wien, „Ektoparasiten“, 6. 5. 2009


Ärztefortbildung LKH Mistelbach (Pädiatrie), Mistelbach, „Parasiten-Befall und Parasitosen im Kindesalter“, 17. 9. 2009


Congress presentations

3. Österreichischer Infektionskongress
Saalfelden, 22. – 25. April 2009
„Parasiten der Leber“

Parasitologische Fachgespräche
Hygiene-Institut, Wien, 5. Juni 2009
„Human toxocarosis in Central Europe“
13. Niederbayerischer Tag der Impf- und Reisemedizin  
“Klimawandel und Parasiten”

4. Round-Table-Gespräch (Parasitäre Infektionen)  
„Toxocara-Befall und Toxokarose in Mitteleuropa – eine Übersicht“  
„Dirofilaria repens-Infestationen des Menschen – eine neue Helminthozoonose in Mitteleuropa?“

PEG Toxoplasmose Meeting  
Frankfurt, Deutschland, 21. Oktober 2009
„Bericht über den Aufbau eines Netzwerkes zur Kontrolle der pränatalen Toxoplasmose“

43. Jahrestagung der Österreichischen Gesellschaft für Tropenmedizin und Parasitologie  
„54 ÖQUASTA-Rundversuche mit parasitologischer Beteiligung – Rück- und Ausblick“

II “Epidemiology and Travel Medicine”

Unit Leader: A.o. Univ. Prof. Dr. H. Kollaritsch, MD, DTM

Co-workers (in alphabetical order):
Katharina Frank (project staff)  
Mag. Dr. Maria Paulke-Korinek (Doctor in training)  
Mag. Brigitte Laaber (study nurse)  
Dr. Claudia Seidl-Friedrich (Doctor in training)  
Mag. Birgit Schmidle-Loss (project staff)  
Tanja Trojer (project staff)  
Ines Zwazl (project staff)

Employees that left the institute 2009:
Ana Grac * job change  
Katharina Kastner * job change  
Renate Kronik * job change  
Maria Jellina Vaartjes * job change

1. Research projects

Ongoing research projects:
• Epidemiological hospital-based surveillance of vaccine preventable diseases (VPD) in Austria (hospitalized cases in children, since 1997): Hepatitis A, Hepatitis B, Hepatitis C, Measles, Mumps, Rubella, Haemophilus B, Rotavirus, Pertussis
This project is unique in Austria and allows the monitoring of vaccine preventable diseases in children on basis of a sentinella system with hospitalized children. Newly introduced vaccines can be monitored with respect to their effect in the community. An impressive example is the introduction of the rotavirus vaccines into the national immunization program and the impact of this vaccine on RV morbidity and hospitalization rates.

- Epidemiological lab-based surveillance of VPD of all age classes (laboratory based cases, since 1999)
  - Hepatitis A, Hepatitis B, Hepatitis C, Measles, Mumps, Rubella, Haemophilus B, Rotavirus, Pertussis

This project understands itself as support of the hospital based surveillance of vaccine preventable diseases in children.

- Tick-Borne-Encephalitis:
  - A phase IV, uncontrolled, open-label, single-center study in adults: Evaluation of immunogenicity and safety of the polygeline-free TBE vaccine in adults, when used as booster at least 3 years after primary or booster TBE immunization: Long term Follow up

The longitudinal surveillance to antibody persistence after TBE vaccination is the clue for adjustment of our current vaccination recommendations. The interim results of our study were impressive enough to change the vaccination recommendations and to prolong the booster intervals.

- Epidemiological surveillance of Invasive Pneumococcal Disease (IPD) in children below 5 years of age in Austria (ongoing since 2000)

Monitoring of IPD with respect to incidence, serotype distribution and antibiotic resistance is crucial when a vaccination programme is established. The Austrian health authorities refused a general vaccination program and initiated a vaccination of risk groups only. We could demonstrate that this program will not be able to influence the incidence of IPD over the years, but we found at least a significant reduction of IPD associated meningitis after 3 years of the national immunization program.

- JEV-vaccine (Intercell) phase III clinical trial (immunogenicity and reactogenicity): IC 51-303 – long term follow up.

This phase III trial will allow to evaluate the duration of protection after vaccination with the new IC51 JEV vaccine.

- An Open Label Phase III study of a Vero Cell-Derived whole Virus H5N1 influenza vaccine to Assess the Immunogenicity and Safety and to Investigate the Need for and Timing of a Booster Vaccination. Started June 2007, ongoing to 2010

- An open-label phase 3 study to assess the Safety and Immunogenicity of a vero cell-derived whole virus H5N1 Influenza Vaccine in an Adult and Elderly Population as well as in specified Risk Groups. Started November 2008, ongoing to 2010

Pandemic influenza is expected to be one of the major threats for public health in the next years. H5N1 derivated strains of influenza are most likely to be the source of the next pandemic. Therefore candidate vaccines, no longer egg based but vero cell derived, are evaluated with respect to their immunologic profile and safety. Our center included nearly 200 subjects into this phase III multicenter trial.

- Seroprevalence of vaccine induced antibodies in Austrian schoolchildren (Ministry of Health, Austria); started last quarter of 2007, ongoing until 2010.

Vaccination programs need to be evaluated for their scheduling. Therefore, we recruited more than 350 children between 5-7 years with a complete vaccination record of recommended vaccinations and investigated these children for presence of
vaccine induced antibodies. First results indicate that Hepatitis B and Diptheria vaccination schedule should be reassessed.

**Newly initiated research projects**

In 2009 3 projects were newly introduced:

Effects of National Vaccination Programs on the Epidemiology of Infectious Diseases in Children: Rotavirus Gastroenteritis and Invasive Pneumococcal Diseases (This project is supported by a grant from OENB). This project is designed to accompany the ongoing vaccination programs in Austria against pneumococcal disease and rotavirus gastroenteritis by monitoring IPD cases and severe cases of RV-GE in vaccinated children by serotyping.

An open label phase I/II study to assess immunogenicity and safety of different dose levels of H1N1 pandemic influenza vaccine in adults aged 18 years and older.

A Prospective Non-Interventional Observational Study to Asses the Safety of Two Vaccinations of a Vero Cell-Derived, Whole Virus H1N1 Pandemic Influenza Vaccine in Subjects Exposed to the Vaccine Through Policies by Governments or Health Authorities”

These two studies are performed in cooperation with Baxter. Both studies are first line studies in the development of pandemic H1N1 vaccines and therefore of high scientific value.

**2. Publications**


Safety and immunogenicity of concomitant vaccination with the cell-culture based Japanese Encephalitis vaccine IC51 and the hepatitis A vaccine HAVRIX1440 in healthy subjects: A single-blind, randomized, controlled Phase 3 study. Vaccine. 27(33):4483-9. IPF: 3,298


TOTAL Impactfactor: 19,843 corr. IP 13,247

Publications without IF-ranking

Kinderärztliche Praxis (80/2009) Sonderheft „Impfen“: Rationale der Rotavirus-Impfempfehlung in Österreich (M. Paulke-Korinek, H. Kollaritsch)


3. Cooperations

A. Cooperations within the MUW:

Prof. Wiedermann-Schmidt: Seroprotection after childhood vaccines; Characterization of Humoral and Cellular Immunity of Low and High-Responders After Tick-Borne Encephalitis (TBE) Vaccination
Prof. Kundi; Institute of Environmental Medicine; Statistical analysis of epidemiological data
Prof. Holzmann, Institute of Virology; Serology post TBE, hepatitis B, A vaccination,
Prof. S. Aberle, Institute of Virology; Rotavirus-serotyping
Prof. G. Stanek, Institute for Hygiene; Surveillance of pertussis epidemiology
Prof. Burgmann; Univ. Clinic of Internal Medicine: Serotyping and antimicrobial resistance testing of Streptococcus Pneumoniae Isolates

B. Cooperations outside MUW:

Prof. Zenz: Kinderklinik Graz
Austrian Federal Ministry of Health, Family and Youth
OENB
Karl Landsteiner Institut

C. International cooperations:

Clinical studies together with:
Novartis Vaccines (TBE vaccination: Long-term protection)
Intercell (Japan Encephalitis vaccine phase III)
Baxter (H5N1 and H1N1 Vero-cell vaccine)
4. Third party funding

The clinical studies were directly sponsored by the respective companies.

<table>
<thead>
<tr>
<th>Identification and source of support</th>
<th>Title and head of project and cooperation partners</th>
<th>Duration of research project</th>
<th>Total sum of grant (€)</th>
<th>Aliquot for 2009 (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>§27 Baxter AG</td>
<td>Vero-cell influenza vaccine – H5N1 Studie</td>
<td>2007 - 2010</td>
<td>590.000</td>
<td>250.000</td>
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<tr>
<td>§27 Baxter AG</td>
<td>Vero-cell influenza vaccine – H5N1 Studie Teil 2</td>
<td>2009 - 2011</td>
<td>250.000</td>
<td>120.000</td>
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<td>§27 Baxter AG</td>
<td>Phase I/II immunogenicity and safety study with H1N1 vaccine</td>
<td>2009 - 2011</td>
<td>180.000</td>
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<td>§27 Baxter AG</td>
<td>Phase IV observational study with H1N1 vaccine</td>
<td>2009 - 2011</td>
<td>1,600.000</td>
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<td>§26 ÖNB</td>
<td>Effect of national rotavirus and pneumococcus vaccinations on disease incidence</td>
<td>2009 – 2011</td>
<td>52.000,00</td>
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<tr>
<td><strong>Summen</strong></td>
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<td></td>
<td><strong>2,422.000</strong></td>
<td><strong>455.000</strong></td>
</tr>
</tbody>
</table>

5. Lectures, PhD-Students

Methodenseminar Tropen- und Reisemedizin  
MUW-Curriculum: Block 22 Impfungen und Chemoprrophylaxe  
MUW-Curriculum: Block 8 Abwehr

M. Paulke-Korinek: PhD-Student (Medicine, since 2007)  
"Epidemiology of vaccine-preventable diseases in Austria"

6. Reviewer activity:

**Prof. Kollartisch:**  
Vaccine  
Journal of Travel Medicine  
Wr. Klin. Wochenschrift
7. Appointments

Prof. Kollaritsch:

- Member and vice-chair of the „Impfausschuss des Obersten Sanitätsrates der Republik Österreich“
- Member of the „Arzneimittelbeirat“ (Ausschuss für Arzneimittelsicherheit) der Republik Österreich
- President of the Austrian Society for Travel and Touristic Medicine.
- Member of the “Board for International Development” of the Austrian Academy of Sciences
- Member of the Scientific Board of the Ministry of Defense, Republic of Austria
- President of the Austrian Committee for Vaccinations
- Co-Editor (special duties) of The Journal of Travel Medicine
- Board member of the Austrian Society for Infectious Diseases

8. Presentations at meetings 2009

Prof. Kollaritsch (invited lectures only)

2.3.-5.3. Saalfelden: Kongress der öst.Apotheker
Reisemedizinisches update mit Impfquiz

19.3.-22.3. Internat. TBE-Symposium:
Workshop on TBE epidemiology

27.3. Salzburg: Impftag des Österr. Bundesheeres:
Japan Encephalitis

28.3. Salzburg: Österr.Impftag:
Ixiaro

28.3. Linz: Linzer Reisemedizinische Tagung:
Update Reiseimpfungen

22.4.2009: Advisory Board Meeting Prevenar, Vienna:
IPD-Surveillance in Austria

23.4.-25.4. Saalfelden: Kongress der ÖGI
Reiseimpfungen

18.5.-22.5. Grado: Arztakademie: Vorlesungsreihe
Österreichischer Impfplan
Reiseimpfungen bei Kindern und Senioren
Reisemedizinische Szenarien

24.5.-28.5. Budapest: CISTM 11
Hepatitis A epidemiology and prevention
18.8.-21.8. Velden: Arztakademie
Vergessene Reiseimpfungen
Workshop Reisemedizin

30.9.-2.10 Dubrovnik/Croatia: 32nd Conf. of middle and eastern mediterranean pediatric societies:
Impact of Rotavirus UMV on hospitalisation in Austria

13.10.: Salzburg: Ärztekammerseminar
Reisemedizinisches update 2009

16.10-17.10. Deutschkreuz: Burgenländischer Impftag
Wichtige Reiseimpfungen

Travel Medicine in Austria

6.11.-7.11. Frankfurt: Jahreskongress der Impfakademie
Rotavirusimpfungen

17.11. Graz: Ärztekammer
Fortbildung Klimawandel und Tropenkrankheiten

Influenza vaccinations

**M. Paulke-Korinek**

**Invited lectures:**
29.1.09: CEE Surveillance Workshop, Budapest
IPD: Standard Components of Surveillance Systems in Austria

25.2.2009: Ärztefortbildung, Wellcon, Wien
FSME-Impfung

28.3.2009 Österr. Impftag, Salzburg
Pneumokokken: Risikokinder-Impfstategie

22.4.2009: Advisory Board Meeting Prevenar, Vienna
IPD-Surveillance in Austria

1.10.09 Jahrestagung der Österreichischen Gesellschaft für Kinder- und Jugendheilkunde, Graz
Epidemiologie Pneumokokkenerkrankungen in Österreich

9.10.2009: Impftagsymposium, Gmunden
Antikörper gegen impfpräventable Erkrankungen bei Schulkindern in Österreich

15.10.2009: CEE Surveillance Workshop, Wien
IPD: Standard Components of Surveillance Systems in Austria
18.11.2009: Impftag, Graz
Pneumokokkenimpfstoffe: Die Qual der Wahl

Congress Presentations:

19.3.-21.3.2009: Jena-Symposium on Tick borne diseases, Weimar
Lecture: Recommendations For Booster Vaccinations Against Tick Borne Encephalitis: 6 Years Follow Up Indicates Long Term Protection.

24.5.-28.5.2009: CISTM, Budapest
Poster: Pretravel Consultation: Rapid Dipstick Test as a Decision Guidance for the Application of Tetanus Booster Vaccinations

9.-13.6.2009: ESPID, Brussels
Poster: The Effect of a national vaccination program on the incidence of Rotavirus-Gastroenteritis-associated hospitalisations in Austria

17.6.-19.6.09 PhD-Symposium MUW, Wien
Poster: National Paediatric Immunization Program of High Risk Groups: No Effect on the Incidence of Invasive Pneumococcal Diseases

21.11.2009: ÖGTP-Jahrestagung, Wien
Lecture: Antikörperuntersuchung impfpräventabler Infektionen bei 5-7 jährigen Kindern

21.11.2009: ÖGTP-Jahrestagung, Wien
Poster: FSME-Impfung - Schutz auch nach 6 Jahren?

Further Educational activities:
27.4.-30.4.2009 Influenza Vaccines for the World-Congress IVW, Cannes
12.5.2009 ÖGTP-Fortbildung Wien
29.9.2009 Kick-off Meeting Rihamet, Wien
4.11.2009 Advisory Board Meeting Prevenar, Wien
13.11.-15.11.2009 Pneumococcal Vaccines Summit, Rome
17.11. und 24.11.2009 AEK Wien-Fortb.09-1112: Infektionen -Bedside teaching
14.12.2009 Giftiger Dienstag

9. Educational Activities outside MUW

Prof. Kollaritsch:
Impfratgeber, 12th ed. 335 pages, Müllerverlag Wien
Tropenmedizin in Klinik und Praxis. Löscher/Burchard, Thieme-Verlag
Kapitel Shigellosen (H. Kollaritsch)
Kapitel Salmonellosen (H. Kollaritsch)
Kapitel Durchfallserkrankungen (H. Kollaritsch, M. Paulke-Korinek)
Kapitel Tropische Sprue (M. Paulke-Korinek, H. Kollaritsch)
III. Exp. Tropical Medicine and Field Research

Unit Leader: Univ. Doz. Harald Noedl, MD, MCTM, PhD

Staff Austria (in alphatecial order):

- Markus Fally, MD
- Hans-Peter Führer, MSc, PhD Student
- Deepa Ganesh, MSc, PhD Student
- Oliver Graf, MD Student
- Verena Hofecker, MD Student
- Mariella Jung, MD Student
- Julia Matt, MSc
- Poonuch Muhamad, PhD Guest Student
- Anja Siedl, MD Student
- Peter Starzengruber, MD
- Paul Swoboda, MD
- Matthias Vossen, MD Student

Staff Bangladesh:

- 8 technicians, nurses, and field workers
- Mun Thawn Bawm, Lab Technician
- Nayebur Rahman, Lab Technician
- Ching Sang Thwe, Health Worker
- Moung Thing Hla, Health Worker
- Thawn Sang Bawm, Health Worker
- Al Mamun, Health Worker
- Bawdot, Health Worker
- Lal Dawt Sang Bawm, Health Worker

1. Projects 2009:

- Analysis of passive malaria epidemiology data from uniformed personnel deployed in the Chittagong Hill Tracts, Bangladesh. Passive malaria epidemiology study in collaboration with the Bangladesh Armed Forces and the Walter Reed Army Institute of Research, Washington, DC.

- Artemisinin Resistance in Bangladesh. Randomized, controlled clinical trial. MUW # 83/2008; ICDDR,B # 2008-008; Collaboration and funding: World Health Organization. Clinical trial to determine the baseline efficacy of artesunate monotherapy for the treatment of uncomplicated falciparum malaria in Bangladesh. Conducted at the MARIB field site at the Bandarban Sadar Hospital, Bangladesh. PIs: H. Noedl, W.A.Khan.
- A Phase III, double-blind, randomised, multicenter trial comparing the safety and efficacy of fixed dose combination tablets of arterolane maleate and piperaquine phosphate (PQP) with Coartem® (artemether-lumefantrine tablets) in patients with acute uncomplicated Plasmodium falciparum malaria. Clinical trial to determine the efficacy of a novel artemisinin-based combination therapy (arterolane maleate and piperaquine phosphate) for the treatment of uncomplicated falciparum malaria in Bangladesh. Conducted at the MARIB field site in collaboration with the Ministry of Health and Family Welfare and the Chittagong Medical College. PIs: H. Noedl, E.B. Yunus. Awaiting ethical approval in Bangladesh.

- Prevalence of malaria and non-malaria febrile illnesses among febrile patients in Bandarban. ICDDR,B: #2006-033. Prevalence survey among 752 fever patients (primary objective) and 2,077 healthy subjects (secondary objective) in Bandarban Province, Southeastern Bangladesh. Project ongoing. Collaboration with the International Centre for Diarrhoeal Disease Research (ICDDR,B), Bangladesh. (data analysis and publication in progress).

- Glucose-6-phosphate-dehydrogenase deficiency in Bandarban District, Bangladesh and its impact on the epidemiology of malaria. (data analysis).

- Hemoglobinopaties in Southeastern Bangladesh.

- Malaria Baseline Prevalence Survey in Bangladesh. GFATM- funded nationwide, cross-sectional prevalence survey for malaria throughout Bangladesh. Enrollment completed. Collaboration with the International Centre for Diarrhoeal Disease Research (ICDDR,B), Bangladesh. (published)

- Seroprevalence of typhoid, leptospirosis, and dengue in southeastern Bangladesh. (data analysis)

- Diagnosis of influenza A and B among febrile patients in southeastern Bangladesh (enrollment completed, laboratory work and data analysis ongoing)

- Antimalarial drug resistance surveillance in Asia (Collaboration with Thai Ministry of Public Health, Thamassat University, The National Center for Parasitology, Entomology and Malaria Control, Cambodia, Ministry of Health and Family Welfare, Dhaka, the ICDDR,B, Bangladesh, and the Chittagong Medical College, Chittagong, Bangladesh

- In vitro antimalarial activity of propafenone and analogs; 2D and 3D quantitative structure activity relationship (QSAR) studies; identification of candidate drug targets after separation of plasmodial proteins on 2D gels (Collaboration with the Institute of Medicinal Chemistry, Medical University of Vienna, P. Chiba).

- Development of novel ELISA-based assays for measuring P. vivax biomass as an indicator of parasite growth and inhibition and its application in drug sensitivity testing. Optimization of culture conditions for P. vivax (ongoing)

- In vitro antimalarial activity of novel antibiotic compounds and interaction with conventional antimalarials (ongoing).

- Building research and diagnostic capacities at the Bandarban Sadar Hospital in Southeastern Bangladesh
- Randomized, controlled, Phase II/III GCP clinical trial with azithromycin-artenesunate combination therapy for the treatment of uncomplicated falciparum malaria in Bangladesh. Study site: Bandarban Sadar Hospital, Bangladesh. “Azithromycin Combination Therapy for the Treatment of Uncomplicated Falciparum Malaria in Bangladesh: an Open Label Randomized Controlled Trial”, Protocol Identifier: ICDDR,B #2006-024; MUW #218/2006, enrollment completed. Collaboration with the International Centre for Diarrhoeal Disease Research (ICDDR,B), Bangladesh. (data analysis completed, publication in progress)

2. Grants 2009

<table>
<thead>
<tr>
<th>Identification and source of support</th>
<th>Title and head of project and cooperation partners</th>
<th>Duration of research project</th>
<th>Total sum of grant (€)</th>
<th>Aliquot for 2008 (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>§26 FWF P18350-Bo2</td>
<td>New assays for <em>P. vivax</em> drug and vaccine development</td>
<td>2006-2009</td>
<td>156.302.00</td>
<td>52.100,00</td>
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<tr>
<td>27 MARIB</td>
<td>Azithromycin combination therapy for the treatment of uncomplicated falciparum malaria in Bangladesh</td>
<td>2008 - 2009</td>
<td>60.794,00</td>
<td>45.346,00</td>
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<tr>
<td>§27 Pharmacon</td>
<td>Action Concept for the Development of Novel Therapeutic Agents against Malaria</td>
<td>2008 – 2010</td>
<td>84.000,00</td>
<td>21.000,00</td>
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<th>Acquired financial support</th>
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<th>Aliquot for 2009 (€)</th>
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<tbody>
<tr>
<td>TOTAL</td>
<td>301.096,00</td>
<td>118.446,00</td>
</tr>
</tbody>
</table>

3. Publications:


**TOTAL Impact: 61.873**  **IP corresp: 61,873**

4. **Cooperations**

Within home institution:

- Institut für Medizinische Chemie, Center for Physiology and Pathophysiology, Medical University of Vienna (P. Chiba)

International:

- Johns Hopkins University, Bloomberg School of Public Health (D. Sullivan)
- World Health Organization, Geneva, Switzerland (P. Ringwald)
- University of Maryland, Baltimore, USA (C. Plowe)
- University of South Florida, Tampa, Florida
- Chittagong Medical College, Chittagong, Bangladesh (E. Yunus)
- Ministry of Health and Family Welfare, Dhaka, Bangladesh (S.H. Hossain)
- Bandarban Sadar Hospital, Bangladesh (AS. Prue Marma)
- Walter Reed Army Institute of Research (WRAIR), Maryland, USA
- International Centre for Diarrheal Disease Research, Bangladesh (ICDDR,B), Dhaka, Bangladesh (R. Haque, WA Khan)
- Thai Ministry of Public Health, Nonthaburi, Thailand (W. Sathimai)
- Thamassat University, Bangkok, Thailand (K. Na-Bangchang)
- National Center for Parasitology, Entomology, and Malaria Control, Phnom Penh, Cambodia (D. Socheat)

5. **Reviewer activity**

- JAMA, The Journal of the American Medical Association
- Trends in Parasitology (formerly Parasitology Today)
- Antimicrobial Agents and Chemotherapy
- American Journal of Tropical Medicine and Hygiene
- Malaria Journal
- Tropical Medicine and International Health
6. Presentations


6. Theses and Training

- Peter Starzengruber, MD: medical training in Specific Prophylaxis and Tropical Medicine
- Hans-Peter Fuehrer, MSc: PhD thesis (ongoing)
- Mariella Jung, MD student: thesis, G6PD deficiency in Bangladesh (ongoing)
- Poonuch Muhamad, PhD Guest Student (Thammassat University), characterization of the antimalarial activity of propafenone and its analogues
- Oliver Graf, MD Student thesis, severe malaria at the Bandarban Sadar Hospital (ongoing)
- Verena Hofecker, MD Student thesis, in vitro characterization of antibiotics for malaria therapy (ongoing)
- Anja Siedl, MD Student thesis, in vitro characterization of antibiotics for malaria therapy (ongoing)

7. Lectures/Workshops

- Highlights aus der Tropenmedizin: from Bench to Bedside (Vorlesung 1 Sst, WS 2009)
- Einführung in die Grundlagen der Statistik und des wissenschaftlichen Arbeiten für Tropenmediziner (Seminar, 1 Sst, WS2009)
IV Malaria and Diagnostics

**Leader:** Prof. Walther H. Wernsdorfer, M.D. (Visiting Professor)

**Co-workers (in alphabetical order):**
- Silvia Gloser, cand.rer.nat., Diploma Student
- Maria Gruber, cand.med., Diploma Student
- Felix Hüttinger, cand.med., Diploma Student
- Gerwald Kerschbaumer, cand.med., Diploma Student
- Alexander Leeb, cand.med., Diploma Student
- Julia Riedl, cand.med., Diploma Student
- Dr. Christin Sisowath, Ph.D., scientific worker, temporarily seconded from KIS
- Anke Wabnig, cand.rer.nat., Diploma student

**Scientific Activities 2008**

In 2009 work on the monitoring of the drug sensitivity of *Plasmodium falciparum* and *Plasmodium vivax* continued, including the investigations of pharmacodynamic interactions between antimalarial compounds themselves as well as between such compounds and retinol. Further studies related to the partition of mefloquine in blood.

**A. Plasmodium falciparum**

Work at the usual study site (Malaria Clinic of Mae Sot, Tak Province, Thailand) was conducted in May-July 2009, as part of the monitoring programme of the Ministry of Public Health of Thailand. The sensitivity studies included practically all blood schizontocidal drugs currently used in Thailand, and compounds considered potential replacement drugs.

1. The monitoring of the sensitivity to currently used drugs yielded evidence of a further reduction of the activities of mefloquine and artemisinin. For artemisinin the IC-90 and IC-99 values rose from 44.1 nM and 149.1 nM in 2001 to 137.2 nM and 1375.7 nM in 2009, a development similar to that observed recently on the Thai/Cambodian border. Also the sensitivity to mefloquine has further declined between 2008 (IC-90 and IC-99 of 1761.1 nM and 39780.1 nM, respectively) and 2009 (IC-90 and IC-99 2504.0 nM and 59160.3 nM), associated with a further flattening of the regression line. Collateral to the reduction of the sensitivity to mefloquine, a reduction of the activity of quinine was observed that is obviously due to the structural similarity of these drugs – both are 4-quinolinemethanols – since quinine use in the study area is minimal.

2. The synergism between artemisinin and mefloquine is the basis of the ACT use in the study area. Despite a high degree of resistance against mefloquine alone, the combination with artesunate yielded until very recently satisfactory clinical-parasitological results in the treatment of falciparum malaria. This synergism is still operating, but the drug levels required for adequate clinical-parasitological response are close to or even beyond the critical threshold. When the combination of artemisinin and mefloquine was tested in association with retinol at the 50th, 65th and 80th percentile of the physiological concentration, the minimum required concentrations of mefloquine and artemisinin were further reduced to levels well within the clinically achievable concentration range. The
degree of synergism between retinol and the artemisinin-mefloquine combination increased with the retinol concentration.

3. Earlier observations on the synergism between lumefantrine and low concentrations of monodesbutyl-benflumetol (DBB), a lumefantrine analogue, were expanded to the investigation using both compounds according to a formal protocol, i.e. at proportional levels of their IC-50 values (1:1 m/m). There was evidence of a highly significant synergistic interaction between lumefantrine and DBB, also marked by a much steeper slope of the log-probit regression line.

4. The activity of 6 structurally defined substances originating from higher tropical plants was successfully investigate in 43 fresh isolates of P. falciparum. Five of these substances (from three different chemical classes) showed substantial activity with IC-99 values <3.0 nM.

5. Further work on the standardized root extract of Eurycoma longifolia and the specific eurycomanons indicates problems with the bioavailability of dihydro-eurycomanone. Further work will therefore concentrate on eurycomanone and epoxy-eurycomanone and selected analogues of these compounds.

6. An in vitro investigation of the partition of mefloquine comparing the drug concentrations in uninfected erythrocytes and RBC infected with P. falciparum yielded evidence that the infected erythrocytes contain ≥4 times as much mefloquine as compared to uninfected erythrocytes. This observation invalidates the argument that the mefloquine concentrations measured in normal (uninfected) blood reflect the expected activity of the drug in the case of infection with P. falciparum.

B. Plasmodium vivax

Following up earlier observations of synergism between pyronaridine and retinol in P. falciparum, the investigation was expanded to P. vivax since pyronaridine, a Mannich base, is considered a possible replacement for chloroquine in the event of resistance to the latter. The interaction studies were successfully conducted with 42 fresh isolates of P. vivax. Synergism was evident at all retinol concentrations, representing the 50th, 65th and 80th percentile of the physiological retinol concentrations in the blood, the degree of synergism rising with increasing retinol concentrations. With retinol at the 80th percentile the minimum effective pyronaridine concentration (MEC) was 1/6 of the MEC of pyronaridine alone. This synergism was associated with a steeper log-probit regression.

2. WHO Assignments (in the capacity of Chairman of the WHO Expert Committee on Malaria)

Evaluation of the request for the certification of malaria eradication of the Government of the Kingdom of Morocco. Preparation for the site visits of selected specialists. Consultation of members of the WHO Expert Panel for Malaria.
3. Academic activities and lectures

- Medical University of Vienna
  Preparatory course for sensitivity assessment February 2009
  Diploma adviser for medical students
  Diploma adviser (biosciences), University of Vienna

- Thammasat University, Bangkok, Faculty of Allied Health Sciences.
  VP, Research and thesis adviser to M.Sc. and Ph.D. students

- Mahidol University, Bangkok, Faculty of Pharmacy
  Examiner (M.Sc.)

- Universiti Sains Malaysia, Penang
  VP, Research and thesis adviser and examiner (M.Sc. and Ph.D.)


Meetings (IP = invited participant; IS = invited speaker; CM = chairman; SCM = session chairman; P = presenter)

- ESTMIH meeting, Verona, Italy, 6-10 September 2009 (IS, CM, SCM)
- Annual Meeting of the Austrian Society of Tropical Medicine and Parasitology, Vienna, 19-21 November 2009 (SCM, P)
- MEG meeting, Sanya, PR China, 13-16 December 2009 (IP, IS)

Reviewer activities

Acta Tropica
American Journal of Tropical Medicine and Hygiene
Antimicrobial Agents and Chemotherapy
BMC Clinical Pharmacology
Clinical Infectious Diseases
Eastern Mediterranean Health Journal
Experimental Parasitology
Journal of Infectious Diseases
Tropical Medicine and International Health

Publications


V. Molecular Microbiology

Unit leader: A.o. Univ. Prof. Michael Duchène, PhD

Co-workers (in alphabetical order):

Miriiana Drinic (Diploma student, FFG Bridge Grant 814280, from August 15, 2009)
Dr. David Leitsch, postdoc (FWF Grant P19044, from September 1, 2006)

Employees that left the institute 2009:

Ing. Marina Binder * retired

1. Major research topics

The main focus of the group is the human intestinal parasite Entamoeba histolytica. We had characterized hexokinases and phosphoglucomutases from pathogenic and nonpathogenic Entamoeba spp. on the molecular level in order to understand the difference between the species (Ortner et al., 1997). Another main area was the examination of surface structures of the amoebae as possible vaccine candidates (e.g. Marinets et al., 1997). Our interest in enzymes led to the study of the metabolism as a whole, which made us part of the E. histolytica genome project (Loftus et al., 2005, Clark et al., 2007). More recently a major goal is to understand the molecular mechanisms of the interaction of metronidazole with the amoebae on the proteome and genome levels (Leitsch et al., 2007, Tazreiter et al., 2008). Whereas this analysis mainly aims to understand the classical anti-amoebic agent, we also tested isolated compounds from tropical plants in the search for new candidates for antiamoebic chemotherapy. In addition to E. histolytica, we studied Acanthamoeba spp. in a project on cyst formation and Trichomonas vaginalis in a project on metronidazole activity and resistance. Other collaborative projects are described below.
2. Current projects

Mechanism of action of metronidazole in E. histolytica and T. vaginalis

Metronidazole is one of the most successful antibiotic agents. It has been used for more than 40 years to treat E. histolytica infections, up to date with no significant signs of developing drug resistance. It is also the gold standard for the treatment of T. vaginalis and Giardia intestinalis infections, and it is active against many anaerobic and microaerophilic bacteria such as Helicobacter pylori or Bacteroides spp. In spite of all this success, there are large gaps in our knowledge of the molecular mechanism of action of metronidazole, and the parasites´ response to the drug.

Supported by the FWF we studied the response of E. histolytica to metronidazole on the mRNA and protein levels. On the mRNA level studied by microarray hybridization and qRT-PCR analysis this response was only very modest (Tazreiter et al., 2008). There was only a slight but significant up-regulation of mRNAs encoding enzymes of oxidative stress response, and enzymes of the glycolytic pathway, and a modest down-regulation of mRNA encoding actin and an enzyme involved in lipid biosynthesis.

Surprisingly, our proteome work revealed that a small number of proteins (thioredoxin reductase, thioredoxin, superoxide dismutase, purine nucleoside phosphorylase, and a small protein of unknown function which we named MTP1) are reproducibly modified by activated metronidazole (Leitsch et al., 2007). The reaction of cysteine residues in the protein with the reduced metronidazole leads to proteins with attached aminoiimidazoles. In the case of thioredoxin reductase this modification inhibited the enzyme activity. In addition, activated metronidazole metabolites also react with free thiol molecules such as cysteine in the cells and significantly diminish these protective molecules. Finally we discovered that thioredoxin reductase, one of the modified proteins, was able to reduce metronidazole and therefore it is not surprising that components of the redox-protective network are the first victims of metronidazole modification (Leitsch et al., 2007).

David Leitsch and Marina Binder extended this work to T. vaginalis. In this parasite, thioredoxin reductase is also able to reduce metronidazole, and again this enzyme and functionally associated other proteins are modified by the activated metabolites. The proteins we found modified were thioredoxin reductase, thioredoxin peroxidase, ribonucleotide reductase, thiol peroxidase, enolase, cytosolic malate dehydrogenase and glucose-6-phosphate isomerase. Interestingly, laboratory-grown resistant parasites lost thioredoxin reductase activity. This was, however, not due to loss or destruction of the enzyme but to the lack of flavin cofactor (Leitsch et al., 2009). This work was extended to show that in T. vaginalis low micromolar concentrations of the flavin enzyme inhibitor diphenyleneiodonium (DPI) rendered T. vaginalis resistant to metronidazole (Leitsch et al., 2010).

Recently we were able to show that protein modification by metronidazole metabolites also occurs in G. intestinalis. This work is ongoing and also addresses the question of metronidazole resistance.

Taken together, our work showed that the thiol-based redox network of E. histolytica T. vaginalis, and probably G. intestinalis is activator and a major target of
metronidazole and other nitroimidazoles. Our further aims are to understand the molecular consequences of the observed reactivities, how the processes in the thiol-based redox network eventually lead to the breakdown of the cellular processes and finally to the parasites’ death. We are currently starting a new FWF project that addresses these questions for *E. histolytica*. Ultimately these studies could give us new targets and new handles for treating infections with the microaerophilic parasites.

**Proteomics of cyst formation in the free-living amoeba *Acanthamoeba castellani**

In contrast to the situation in *E. histolytica*, there are well-established methods for cyst formation in *Acanthamoeba castellani*. In a cooperation with Doz. Dr. Walochań and Dr. Martina Köhlsler (Medical Parasitology Group), Mag. Andrea Deutsch, Dr. Martina Marchetti-Deschmann, and Prof. Dr. Günter Allmaier (Vienna University of Technology), David Leitsch examined the protein changes during the process of encystation in *A. castellani*. In contrast to the minimal response in *E. histolytica* to chemotherapeutics, the conditions inducing cyst formation in *A. castellani* induced the synthesis of numerous proteins as shown by two-dimensional electrophoresis. Many changes can be observed as early as after four hours. In contrast to the situation in *E. histolytica*, the lack of a completed genome project led to vast delays in the identification of protein spots. Careful comparison of *Acanthamoeba* strains showed that those that were freshly isolated more readily encysted compared to the strains that had been in the laboratory for a long time. This was shown to be caused by epigenetic regulation (Koehsler et al., 2008). The ability to encyst could be restored by passage through mammalian cells (Koehsler et al., 2009).

The encystment process in *Acanthamoeba* spp. appears to be a bipartite process. In the first hours, significant degradation of proteins is observed, and protein synthesis appears to be shut down. In a later phase protein synthesis resumes in order to allow the expression of encystment-specific genes (Leitsch et al., in press).

During the previous year, we characterized an infection of our *Acanthamoeba* strains with what was identified by our collaborator Prof. Dr. Matthias Horn (Department of Microbial Ecology, University of Vienna) as *Parachlamydia acanthamobae*, an obligate intracellular parasite of several *Acanthamoeba* spp., which is also suspected to be able to infect human cells. At elevated temperatures, the bacteria lyse and destroy the amoebae. In two-dimensional electrophoresis, massive spots of bacterial proteins were observed. We infected various *Acanthamoeba* isolates with parachlamydia and analyzed the samples by two-dimensional electrophoresis. The newly formed proteins always migrated to the same positions showing that they were bacterial, not host proteins. The infection rendered the amoebae unable to encyst, and cyst formation was inhibited at a very early stage (Leitsch et al., manuscript submitted).

**Anti/protozoal chemotherapy using substances isolated from rainforest plants**

In a collaboration with Prof. Dr. Harald Greger* and Dr. Brigitte Brem (Faculty Center of Botany, University of Vienna, *Project Head), Dr. Andreas Obwaller, Orphanidis, Vienna, Doz. Dr. Julia Walochkin, and Prof. Dr. Walther Wernsdorfer experiments
were initiated investigating isolated plant substances - from *Aglaia, Stemona* and *Glycosmis* spp. as possible cytotoxic agents against protist parasites and fungi. We obtained a grant from the FFG to extend this work to a number of parasites and to perform initial toxicological studies to evaluate the isolated substances for their potential for further development. In this group Mirjana Drinic established a working microtiter plate assay for *E. histolytica* testing, and found that one of the compounds displayed significant activity against *E. histolytica*. The same compound was also active against *Giardia intestinalis*. Some peculiar results of the tests allowed us to come to a hypothesis on the mode of action of the compound.

**Genetic variation of *Bordetella pertussis* isolates**

The project originated from the question, whether the high vaccination pressure on *B. pertussis* may lead to a higher rate of sequence variations in clinical isolates from Austrian patients. The project is a collaboration within the department of Specific Prophylaxis and Tropical Medicine. The collection of DNA samples was initiated by Prof. Dr. Herwig Kollaritsch, Doz. Dr. Pamela Rendi-Wagner and Dr. Helen Melzer, who laid a solid foundation of our sample collection and analyzed the first series. Supported by a grant from the “Jubiläumsstiftung der Österreichischen Nationalbank” to Prof. Dr. Ursula Wiedermann, Dr. Birgit Wagner collected many more samples and analyzed them for polymorphisms in the pertussis toxin and pertactin genes using classical PCR and sequence analysis. The same sequence types as in other European countries were found, but the relative frequency of the alleles showed marked differences. Recently, Maharjan et al. (2008) reported new single nucleotide polymorphisms in *B. pertussis*, five of which cause amino acid exchanges in pathogenicity-associated genes. In a collaboration with Prof. Dr. Ralf Steinborn (VetOMICS Core Facility, University of Veterinary Medicine) these polymorphisms are currently examined in our isolates.

**Allergens from the moth pests *Plodia interpunctella* and *Ephestia kuehniella***

This allergy project had started as a collaboration with Prof. Dr. Rudolf Valenta and colleagues at the Department of Pathophysiology. Moth pests feeding on kitchen supplies are highly prevalent in many households of the industrialized countries. Ing. M. Binder had shown that a high proportion of indoor allergic patients had IgE against moth extracts. The *P. interpunctella* arginine kinase (Plo i 1) was characterized as a major novel allergen (Binder et al., 2001). During the following project supported by the “Jubiläumsfonds der Nationalbank” we were able to clone several more allergens, for example a thioredoxin. In a new project supported by the Hochschuljubiläumsstiftung der Stadt Wien, we analyzed the prevalence of IgE to *E. kuehniella* antigens in patients’ sera from three clinical centers from three countries. In a collaboration with Prof. Dr. U. Wiedermann and Mag. Elisabeth Hoflehner, we compared recombinant arginine kinase and thioredoxin from *P. interpunctella*, and found that both allergens induced classical Type I allergy in mice. The arginine kinase had a higher potency as measured by the serum IgE levels, strength of TH2 cytokine response, and ß-hexosaminidase release from RBL cells upon allergen-specific challenge. A manuscript is currently prepared on the results.
3. Publications 2009


Gesamt IPF: 10,58  corr. Author IPF: 5,231

4. Cooperations

A. Within the MUW

Elisabeth Hoflehner, Andreas Repa, Ursula Wiedermann-Schmidt (our Department): mouse model of Indianmeal moth allergy, immunosuppressive factors in E. histolytica

Ursula Wiedermann, Birgit Wagner, Helen Melzer, Pamela Rendi-Wagner, Herwig Kollaritsch (our Department): genetic variation of clinical Bordetella pertussis isolates

B. Outside the MUW

Daniel Kolarich (Core of Biomolecular Frontiers, Macquarie University, Sydney, Australia), Johannes Stadlmann, Friedrich Altmann (Department of Chemistry, University for Natural Resources and Applied Life Sciences, Vienna): identification of E. histolytica and Trichomonas vaginalis proteins involved in metronidazole action by MALDI-TOF and tandem mass spectrometry

Jacqui Upcroft, Anita Burgess, Linda Dunn (The Queensland Institute of Medical Research, Brisbane, Australia): Metronidazole action and resistance in Giardia intestinalis

C. Within and outside of the MUW

Günter Allmaier, Martina Marchetti-Deschmann, Andrea Deutsch (Institute of Chemical Technologies and Analytics, Vienna University of Technology), Matthias Horn, Lena König, Barbara S. Sixt (Department of Microbial Ecology, University of Vienna), Julia Walochnik, Martina Köhlsler (our Department): Acanthamoeba cyst
formation - proteomics, identification of induced proteins by mass spectrometry, *Parachlamydia* spp. as parasites of acanthamoebae.

Brigitte Brem, Adriane Raninger and Harald Greger (Department of Chemical Ecology and Ecosystem Research, University of Vienna), Andreas Obwaller (Orphanidis Pharma Research, Vienna), Julia Walochnik, Florian Astelbauer and Walther Wernsdorfer (our Department): testing of plant-derived anti-parasitic agents for antiparasitic chemotherapy

Ursula Wiedermann, Pamela Rendi-Wagner (our Department), Iain Wilson (Department of Chemistry, University for Natural Resources and Applied Life Sciences, Vienna), Andreas Spittler (Department of Surgical Research, MUW), Kambis Sadeghi (Department of Pediatrics, MUW), Nancy Guillén (Unit of Cellular Biology of Parasitism, Pasteur Institute, Paris), Sam Stanley (Division of Infectious Diseases, Washington University School of Medicine, St. Louis): the EH5 proteophosphoglycan antigen on the surface of *E. histolytica*, localisation, cross-reactivity with immune cells, recombinant antibody EH5

Ursula Wiedermann, Birgit Wagner, Helen Melzer, Pamela Rendi-Wagner, Herwig Kollaritsch (our Department), Ralf Steinborn (VetOMICS Core Facility, University of Veterinary Medicine, Vienna): genetic variation of clinical *Bordetella pertussis* isolates

Evelyn Hatzenbichler, Agnes Grünfelder, Martin Schreiber (Department of Obstetrics and Gynecology), Ralf Steinborn, Georg Mair-Scorpio (VetOMICS Core Facility, University of Veterinary Medicine, Vienna): response of *E. histolytica* to metronidazole - microarrays and qRT-PCR

Jos Brouwers (Dept. of Biochemistry & Cell Biology, Faculty of Veterinary Medicine, Utrecht), Aner Gurvitz (Department of Physiology): *E. histolytica* lipid structure, fatty acid elongases

5. Third party funds

**Grants in progress schon abgeliefert**

<table>
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<th>Identification and source of support</th>
<th>Title and head of project and cooperation partners</th>
<th>Duration of research project</th>
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<td>§27 FFG Bridge 814280</td>
<td>Wirkprofil pflanzlicher Naturstoffe bei pathogenen Protozoen</td>
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<td>§26 FWF P19044 (gemeinsames Projekt mit Prof.</td>
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Dr. J. Walochnik) protein expression in differentiating cell

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6. Teaching

A. PhD theses
No PhD theses finished in 2009

B. Lectures

SS 2009:
514081 Kombinations Wahlfach - Ausgewählte Themen aus funktioneller Pathologie
7 SStd.
Michael Duchêne, Renate Fuchs, Enikö Kallay, Peter Pietschmann, Andreas Spittler, Martin Willheim
M. Duchêne: Genetische Erkrankungen des Menschen - molekularbiologische Aspekte
501824 Impfwesen und Tropenmedizin 2 SStd.
Herbert Auer, Michael Duchêne, Herwig Kollaritsch, Harald Noedl, Maria Paulke-Korinek, Angelika Wagner, Ursula Wiedermann-Schmidt
M. Duchêne: Teilvorlesung "Entamoeba histolytica, Trichomonas vaginalis, Giardia intestinalis"

WS 2009/2010:
623.000 Highlights aus der Tropenmedizin: from Bench to Bedside 1 SStd.
Harald Hoedl, Michael Duchêne

7. Awards
No award 2009

8. International mobility
Presentation of data in 1 international congress (see below).

9. Reviewer for journals 2009
Cellular Microbiology
Molecular and Biochemical Parasitology
Molecules
Molecular Microbiology
Parasitology
Parasitology International
Proteomics
10. Presentations at meetings 2009

1. Thioredoxin reductase as activator and target of metronidazole activity against *Entamoeba histolytica* and *Trichomonas vaginalis*
   David Leitsch, Daniel Kolarich, Marina Binder, Friedrich Altmann, Michael Duchêne
   (Michael Duchêne, Vortrag)
   XVI Seminario sobre Amibiasis and EMBO Workshop: Amebiasis: molecular approaches in an important but neglected disease
   Guanajuato City, GTO, Mexico, February 24 to 28, 2009

2. Motten, eine unterschätzte Allergenquelle? Molekulare Charakterisierung von Allergenen aus der Dörrobstmotte
   Michael Duchêne (Vortrag)
   Pirquet Club, Wien, 20. April 2009

3. Antileishmanial activity of plant-derived substances
   Florian Astelbauer, Andreas Obwaller, Brigitte Brem, Harald Greger, Michael Duchêne, Walther Wernsdorfer, Julia Walochnik (Poster)
   Innovation goes Business, Vienna, May 5, 2009

4. Metronidazole against *Entamoeba histolytica* and *Trichomonas vaginalis* - how does it work?
   David Leitsch, Daniel Kolarich, Marina Binder, Iain B. H. Wilson, Friedrich Altmann, Michael Duchêne (Michael Duchêne, Poster)
   1. Jahrestagung der Österreichische Gesellschaft für Molekulare Biowissenschaften und Biotechnologie (ÖGM BT)
   Innsbruck, September 21 to 23, 2009

5. A proteomic study on infections with *Parachlamydia acanthamoebae* in its *Acanthamoeba* host. David Leitsch, Martina Köhsler, Martina Marchetti-Deschmann, Andrea Deutsch, Günter Allmaier, Matthias Horn, Michael Duchêne, Julia Walochnik (David Leitsch Vortrag)
   13th International Meeting on the Biology and Pathogenicity of Free-living Amoebae
   Tenerife, Canary Islands, May 17 to 21, 2009

6. Comparison of protease profiles during differentiation of *Acanthamoeba* morphological group I, II and III. Martina Köhsler, David Leitsch, Michael Duchêne, Julia Walochnik (Matina Köhsler Vortrag)
   13th International Meeting on the Biology and Pathogenicity of Free-living Amoebae
   Tenerife, Canary Islands, May 17 to 21, 2009

7. Metronidazole and other nitroimidazole drugs disrupt the cellular redox balance of microaerophilic parasites.
   David Leitsch, Anita Burgess, Linda Dunn, Michael Duchêne, Jacqui Upcroft (David Leitsch, Vortrag)
   III International Giardia and Cryptosporidium Conference, Orvieto, October 11 to 15 2009

8. Louis Stanley Diamond - Nachruf auf einen großen Parasitologen
   Michael Duchêne (Vortrag)
9. Encystment in Acanthamoeba castellanii is a bipartite process comprising a first phase of large scale autolysis and a second phase of expression of encystment specific proteins
David Leitsch, Martina Köhsler, Martina Marchetti-Deschmann, Andrea Deutsch, Günter Allmaier, Michael Duchêne, Julia Walochnik

43. Jahrestagung der Österreichischen Gesellschaft für Tropenmedizin und Parasitologie
Wien, Naturhistorisches Museum, 20.-22. November 2009

10. Anti-trypanosomal activity of plant-derived substances
Florian Astelbauer, Andreas Obwaller, Adriane Raninger, Brigitte Brem, Harald Greger, Michael Duchêne, Walther Wernsdorfer, Julia Walochnik (Florian Astelbauer, Vortrag)

Meeting contributions 2009: 8
Oral presentations (not invited, own group): 6
Oral presentations (not invited, collaborations): 2
Poster: 2

VI Molecular Parasitology

Unit Leader: Julia Walochnik, AssProf, MSc, PhD

Co-workers (in alphabetical order):
DI Florian Astelbauer, PhD student
Michaela Haider, Diploma student
Iveta Häfeli, Tech.
Dr. Martina Köhsler, Post Doc
Markus Kranzler, Diploma student
Kerstin Liesinger, Diploma student
Verena Pecavar, Diploma student
Jacek Pietrzak, Tech.
MSc. Wilawan Pumidonming, PhD student
Mag. Ute Scheikl, Tech.
Michael Syrowatka, Diploma student
Sylvia Tippl, Diploma student

Employees who left the institute in 2009:
Susanne Glöckl* maternity leave
Verena Pecavar * diploma study finished
1. Research interests

- protozoa as human pathogens
- *Acanthamoeba* infections
- protozoan molecular phylogeny
- anti/protozoan biocides

2. Research programs

A. Ongoing projects

- “Glycosilation in *Acanthamoeba*” P20565FWF (2008-2011, Projektmitarbeiter)
- “Antimikrobielle Wirkung von Froschschaumnestern” HYG31/08 Orphanidis (2008-2009; Projektleiter)
- “Amöben bei Reptilien” G08/08 (2007-2009; Projektleiter)
- “Bioaktive Naturstoffe gegen Parasiten” FFG814280/13094 (2007-2010, Projektleiter desMUW-Teils)

B. Newly initiated projects

- “Effective mechanism of pentamycin against trichomonads” FA794_A0302 (2009-2010, Projektleiter)

3. Publications


**TOTAL Impactfactor: 23,48  corr. Impactfactor: 11,175**

4. Cooperations

**National cooperations within the MUW:**

Department of Spezifische Prophylaxe & Tropenmedizin:
Unit: Prof. M. Duchêne: Acanthamoeba encystation; Plant derived extracts with anti-protozoal effects

Unit: Prof. W. Wernsdorfer: Plant derived extracts with anti-protozoal effects

Institute for Hygiene and Applied Immunology (Prof. R. Sommer, Dr. M. Suchomel)

Klinische Abteilung für Klinische Mikrobiologie (Prof. B. Willinger)

Dermatology: Prof. E. Tschachler, Dr. F. Gruber, M. Mildner

**National Cooperations outside MUW**

Prof. G. Allmaier (Institut für Chemische Technologien und Analytik, Technische Universität Wien)

Prof. H. Greger (Department für Botanische Systematik und Evolutionsforschung, Universität Wien)

Prof. M. Horn (Department für Mikrobielle Ökologie, Universität Wien)

Dr. H. Sattmann (Naturhistorisches Museum Wien)

Prof. I. Wilson (Department für Chemie, Universität für Bodenkultur).

Dr. A. Obwaller (Orhanidis Pharma Research)
International cooperations

Dr. R. Michel (Central Institute of the Federal Armed Forces Medical Services, Germany)

Dr. J. Mulec (Karst Research Institute, Slovenia)

Prof. F. Petry (University of Mainz, Germany)

1. Grants and third party funds

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4.1 Other projects

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<td>Amoebae in caves</td>
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6. Diploma, PhD-thesis, Lectures

**PhD students**

DI Florian Astelbauer
Anti-Protozoal and Anti-Fungal Activity of Plant Derived Substances

MSc Wilawan Pumidonming
Pathogenicity related proteins in Acanthamoeba spp.

**Diploma students**

Verena Pecavar (exam: Nov. 2009)
Importance of pathogenic amoebae in a zoological garden

Ute Scheikl (exam: Okt. 2009)
Free-living amoebae in industrial waters

Sylvia Tippl
Antimicrobial agents in foam nests of tropical frogs

Kerstin Liesinger
Prevalence of trematodes in fecal specimens of red deer in the Danube National Park

Michaela Haider
Prevalence of trematodes in Galba truncatula in the Orth/Danube region

Markus Kranzler
Mode of action of pentamycin against T. vaginalis
Michael Syrowatka

Mode of action of pentamycin against T. vaginalis

**Lectures**

Parasitologisches Seminar (SE, 2 SStd),
Medizinisch-parasitologisches Praktikum und Seminar (SE+UE, 2 SStd)
Wissenschaftliche Arbeiten (SE, 4 SStd)
Anleitung zu wissenschaftlichen Arbeiten (SE, 3 SStd)
Krankheit, Manifestation und Wahrnehmung, allgemeine Arzneitherapie (SE+PR, Block 9, 3,53 SStd)
Grundlagen der molekularen Parasitologie - Seminar für Dissertanten (VO+UE, 2Std)

**7. Awards, Functions, Patents**

“Walter Colli Prize 2009” of the Brasilian Society of Protozoology

**Functions**

- Pool of Scientific advisors the European Commission
- Board member of the Austrian Society of Biological Systematics (NOBIS)
- Auditor of the European Federation of Parasitologists (EFP)
- Teacher in a training course for “Médecins Sans Frontières”
- Chief editor of the Austrian Society for Tropical Medicine and Parasitology
- Board member of the Austrian Society of Tropical Medicine and Parasitology (ÖGTP)

**8. International Exchange**

ÖAD Project, Postojna, Slovakia; joint lab and field work in Postojna and in Vienna

**9. Referee activity, Editor**


Editorial board member of the *The Open Infectious Diseases Journal (TOIDJ)*
10. Congresses and Presentations

**Invited lectures (Julia Walochnik)**

ÖGTP Advanced Education, Vienna, „Climate Change and Globalisation“, Wien, Jänner 2009

Giftiger Dienstag „Medically Important Vectors“, Wien, Jänner 2009

„Free-living amoebae as pathogens“, Kong Kaen, Thailand, April 2009

„Babesien und Babesiosen“, Billrothhaus, Wien, April 2009

"AUVA (Austrian Insurance), „Amoebae as pathogens and as vectors for legionellae“, Mai 2009

„Organisms as parasites and as symbionts, University of Berlin (FU), Juni 2009

Giftiger Samstag, „Backpacker Tourism and Parasites“, Technical Museum Vienna, Juni 2009

“Hotel Mensch” Kinderuni 2009, Juli 2009

**Congress presentations**

Doz. Julia Walochnik:


„Isolierung von Acanthamoeba Genotyp T5 aus dem ZNS“
**J. Walochnik, P. Lackner, H. Auer, E. Schmutzhard**


„Isolierung von Thecamoeba quadrilineata mit pilzartigen intranukleären Parasiten und Beschreibung ihrer Entwicklung und des Wirtsspektrums“
Michel, R., R. Kurek, P. Scheid, J. Walochnik, B. Hauröder

3. Österreichischer Infektionskongress Saalfelden, 22. – 25. April 2009

„Protozoonosen des Gastrointestinaltraktes“
invited speaker

XIIIth International Meeting on the Biology and Pathogenicity of Free-Living Amoebae (FLAM) Puerto de la Cruz, Teneriffa, Spanien, 17. – 21. Mai 2009

“History, Phylogeny and Medical Relevance of the genus Sappinia“
**J. Walochnik, C. Wylezich, R. Michel**

invited speaker; chair
Leopoldina Meeting on Climate Change
Greifswald, Germany, 26. – 28. Mai 2009
„Climate change as a driving force for evolution. Nova Acta Leopoldina“
J. Walochnik, M. Harzhauser, H. Aspöck
invited speaker

Parasitologische Fachgespräche
Hygiene-Institut, Wien, 5. Juni 2009
Vortrag Fr. Doz. Julia Walochnik
„Giardia lamblia – a review“

XXV Meeting of the Brazilian Society of Protozoology (ICOPA)
“Migration of Acanthamoeba into an organotypic skin model and treatment with miltefosine”

2nd Central European Forum for Microbiology (CEFORM)
Kezthely, Ungarn, 7. – 9. Oktober 2009
„Leishmaniosis in Austria? Climate change and autochthonous Leishmania infections in Central Europe“
J. Walochnik, H. Aspöck

Fr. Doz. Julia Walochnik 1 x Vorsitz (Molekulare Biologie)
Acanthamoeba-Keratitis in Mitteleuropa – Projektstudie 2006-2009
J. Walochnik, I. Reiter-Owona

Wilawan Pumidonming:

XIIIth International Meeting on the Biology and Pathogenicity of Free-Living Amoebae (FLAM) Puerto de la Cruz, Teneriffa, Spanien, 17. – 21. Mai 2009
“Binding of complement factors and activation of alternative pathway in Acanthamoeba spp.”
W. Pumidonming, F. Petry, E. Dauber, J. Walochnik

„Binding to complement factors and activation of alternative pathway in Acanthamoeba strains“
W. Pumidonming, F. Petry, E. Dauber, J. Walochnik

Dr. Martina Köhsler

XIIIth International Meeting on the Biology and Pathogenicity of Free-Living Amoebae (FLAM) Puerto de la Cruz, Teneriffa, Spanien, 17. – 21. Mai 2009
“Comparison of protease profiles during differentiation of Acanthamoeba morphological group I, II and III”
M. Köhsler, D. Leitsch, M. Duchêne, J. Walochnik
“EMSP (encystment mediating serine proteinase) is present in Acanthamoeba morphological Group II and III – a DNA and RNA study”
**M. Köhsler, D. Leitsch, J. Walochnik**

**Vortrag Hr. Dr. David Leitsch**

XIIIth International Meeting on the Biology and Pathogenicity of Free-Living Amoebae (FLAM) Puerto de la Cruz, Teneriffa, Spanien, 17. – 21. Mai 2009
“A proteomic study on infections with Parachlamydia acanthamoebae in its Acanthamoeba host”
**D. Leitsch, M. Köhsler, M. Marchetti-Deschmann, A. Deutsch, G. Allmaier, M. Horn, M. Duchêne, J. Walochnik**

Encystment in Acanthamoeba castellanii is a bipartite process comprising a first phase of large scale autolysis and a second phase of expression of encystment specific proteins”
**D. Leitsch, M. Köhsler, M. Marchetti-Deschmann, A. Deutsch, G. Allmaier, M. Duchêne, J. Walochnik**

**DI Florian Astelbauer**

“Anti-trypanosomal activity of plant derived substances”
**F. Astelbauer, A. Obwaller, A. Raninger, B. Brem, H. Greger, M. Duchêne, W. Wernsdorfer, J. Walochnik**

**Vortrag Hr. Hans-Peter Führer**

“PCR-based prevalence screening for Plasmodium sp. in the Chittagong Hill Tracts, Bangladesh”

**Vortrag Hr. Markus Kranzler**

„Wirkung von Pentamycin auf Trichomonas vaginalis – Veränderungen auf der Proteinebene“
**M. Kranzler, D. Leitsch, M. Syrowatka, C. Winnips, J. Walochnik**
Vortrag Fr. Kerstin Liesinger

Mikroskopische und molekularbiologische Untersuchung von Rotwildlosungen auf digene Trematoden mit besonderem Augenmerk auf humanpathogene Spezies
**K. Liesinger**, M. Haider, V. Pecavar, Hörweg, H. Sattmann, J. Walochnik

Vortrag Fr. Sylvia Tippl

“Biocidal activity and biochemistry of frog foam nests (Family: Leptodactylidae)”

Vortrag Fr. Birgit Schiller

„N-Glycosylation in Acanthamoeba“
**B. Schiller**, K. Nöbauer, S. Kurz, E. Razzazi-Fazeli, J. Walochnik

Vortrag Fr. Andrea Rosenberger

„Xylose metabolism in Trichomonas vaginalis“

**Congress organisation**
Scientific committee of International Meeting on the Biology and Pathogenicity of Free-Living Amoebae (FLAM), Tenerife, Spain

**VII. Vaccinology and Immunology**

*Unit Leader: Univ. Prof. Ursula Wiedermann-Schmidt, MD, PhD*

**Co-workers**
Erika Garner-Spitzer, MSci, BMA
Mag. Elisabeth Hoflehner, PhD-student
Dipl. Ing. Joanna Jasinska
Dr. Irma Schabussova, PhD
Onisa Ul-Haq, CTA
Dr. Angelika Wagner, MD (Doctor in training)
Employees left the institute 2009:

Karin Hufnagl * maternity leave
Markus Mandl * job change

1. Research interests

- Animal models for infectious diseases, allergy and tumobiology
- Mucosal vaccines: oral and nasal vaccines for prophylaxis and therapy of allergy, infectious diseases and cancer (breast cancer, melanoma)
- Needle free vaccination
- Delivery systems/adjuvants for vaccines, new forms of vaccination for prophylaxis and therapy against infectious diseases, allergies and cancer
- Immunological tolerance induction: A concept for treatment of immunological disorders
- Immunological mechanisms underlying tolerance induction
- Characterization of immune responsiveness and non-responsiveness upon vaccination
- Longterm protection and characterization of immunological memory following vaccination

2. Research programs

Animal models/Animal studies

Mouse models of allergy/asthma:
Mucosal polyvalent vaccine against allergic multisensitivities
Model of Toxoplasma gondii infection
(Cooperation with Prof. Joachim, Vet Med.)
Mouse models for breast cancer and melanoma
(Cooperation with the Department of Internal Medicine, Prof. Zielinski; Department of Dermatology, Prof. Pehamberger; Institute of Pathophysiology, /Prof. Breiteneder/Doz. S. Wagner).

Mucosal vaccination and delivery of vaccines

Use of lactic acid bacteria (LAB) for immunomodulation
- Mucosal application of different LAB prior and after sensitization with an allergen or hypoallergenic molecules (prophylaxis, therapy)
- Use of LAB as expression system for production of allergens or hypoallergenic variants and use as a mucosal antigen delivery system. Use of selected lactic acid bacteria for expression of polypeptides or novel chimeric allergens for treatment of multisensitization.
- Use of LABs for expression of parasitic antigens (e.g. tachyzoite antigens of Toxoplasma gondii) development of a mucosal vaccine against toxoplasmosis
- Use of LABs for expression of tumor antigen (e.g. peptides of the tumor antigen Her-2/neu. The expression of antigen in LAB is performed in cooperation with the Institute Pasteur in Lille, France (Prof. Bruno Pot).
**Use of Lactic acid bacteria for pre-peri-and postnatal intervention**

Mucosal application (feeding) of different probiotics strains with defined immunomodulatory properties during the pre- and postnatal period to prevent the development of allergy/asthma. Characterization of immunomodulation and identification of mechanistic pathways are performed. Potential immunosuppressive effects against concomitantly applied vaccines or ongoing infections. These studies are done in cooperation with the Nestle Research Institute in Lausanne, CH

**Mucosal tolerance induction**

Use of a model of polysensitization (immunization with several antigens) and tolerance induction by co-administration of several antigens ("poly-tolerization"). Aim: polyvalent mucosal allergy vaccine: Hybrid allergens, containing several antigens were constructed and were mucosally applied to polysensitized mice, leading to significant reduction of allergic immune responses to all antigens. (Hufnagl et al JACI 2005). This project is part of a Special Research Program (SFB F018), entitled “Molecular and immunological strategies for prevention, diagnosis and treatment of type I allergies”.

**Production of chimeric molecules for development of a polyvalent vaccine**

In order to be able to treat patients with multiple sensitivities to different allergens, novel molecules that include more than two non-cross reactive allergens were created. These allergen chimers were done by cDNA cloning of several immunodominant epitopes into one complete molecule and expressed in E.coli. The allergen chimers were tested for their capacity to act as tolerogens in a mouse model of polysensitization (Wild et al, Allergy 2006). Currently, a chimer for the treatment of the oral allergy syndrome has been created and tested in a respective mouse model (Hoflehner E et al, manuscript in preparation.

**Recombinant bacterial-based mucosal vaccine against protozoal infections**

*Toxoplasma gondii*, a ubiquitous intracellular parasite, infects all mammalians; in Middle Europe approx. 40 % are sero-positive. In healthy people the infection usually is asymptomatic but may develop into heavy disease if the immune system is not fully developed or suppressed with ocular or cerebral toxoplasmosis being the most frequent manifestations. Although screening programs have been internationally introduced with good results, Toxoplasmosis still is one of the most pronounced opportunistic infections world-wide. The aim of the project is the development of a vaccine on the basis of protective surface antigens, expressed during the acute and chronic phase of infection. The ultimate goal is an oral vaccine.

The project is performed in cooperation with the Institute Pasteur de Lille, the Department of Pediatris at the MUW, the VetMed Vienna and the Department of Microbiology in Gdansk, Poland.
Immunomodulation by *Toxoplasma gondii* – characterization of regulatory mechanisms induced by the parasite

According to the hygiene hypothesis, postulating that a reduction of microbial exposure (Hepatitis A, helminth infections, Toxoplasma infection) leads to an increase in allergic diseases, we have recently shown in a mouse model that infection with *Toxoplasma gondii* prevents the development of allergy and reduces already ongoing allergic symptoms. Our data show that immunoregulation of the parasite depends on distinct mechanisms in the acute and the chronic stage of disease. In cooperation with the lab of Prof. Rick Maizels we are characterizing the immunoregulation during infection in more detail. We further try to identify and isolate the immunomodulatory molecules, in order to evaluate whether they may serve as new adjuvant systems in the future.

Development of a peptide/mimotop based vaccine against breast cancer and melanoma

A mouse model for breast cancer was established using transgenic mice expressing the tumor antigen Her/2/neu in the mammary glands. SCID mice are used to induce melanoma by injecting a human melanoma cell line. These models are used for vaccination with tumor antigen-specific peptides, in order to induce an active immunity against the tumor antigens, leading to reduction of tumor cell growth *in vivo*. (J. Jasinksa et al Int. J. Cancer 2003; Wagner et al J. Immunol. 2005, Wagner et al Breast Cancer Res. Therapy 2007).

In cooperation with Pevion Biotech/Crucell a virosome-peptide Her-2/neu vaccine against breast cancer was developed. The first clinical trial (Phase I) was started in September 2006 and successfully completed in 2009 in cooperation with the Department of Internal Medicine I (Division of Oncology; Prof. Zielinski) at the General Hospital Vienna.

Polymorphism of the Austrian *Bordetella pertussis* population: molecular typing of patients’ isolates

The project aims to determine the spectrum of *B. pertussis* strains in Austria and how this spectrum is related to those of other European countries; furthermore possible genetic variation of the bacterial sequences shall be evaluated and compared with the bacterial sequences within common vaccines. During the project a standard PCR diagnostic for *B. pertussis* infections shall be established and correlations between positive isolates and specific antibody titers performed. This project is done in cooperation with the research units “Molecular Microbiology” and “Epidemiology and Travel Medicine”.

Characterization of immunological responsiveness and non-responsiveness following vaccination in a healthy study population

Evaluation of antibody titers 10 years after hepatitis A vaccination. Measurement of cellular immune responses and immunological memory in “non-responder versus high responder vaccinees” (Rendi-Wagner et al Vaccine 2006). 52 patients of more than 1000 hepatitis A vaccinees were further tested for antibody titers and cellular immune responses prior and after booster vaccination. We demonstrated a strong correlation of humoral and cellular immune responses, i.e. low antibody levels are associated with low cytokine production levels and vice versa. A small percentage (> 2%) of “real non-responders were identified. These
subjects lack the expression of the hepatitis A receptor on CD4+ cells, suggesting this receptor as a prediction marker of non-responsiveness to hepatitis A.

**Immunological mechanisms of low and non-responsiveness following vaccination**

Based on the previous results in hepatitis A vaccinees we identified a collective of 4-5% which do not respond to FSME vaccination. A new study was initiated to answer the following questions:

- Is low/no- responsiveness a general or antigen-specific phenomenon?
- Is there a correlation between humoral and cellular immune responses in low responders?
- Are there characteristic changes of cellular parameters in low responders?
- Is there a cellular prediction marker of non-responsiveness?
- Is the infection risk higher in low/no- responders?
- Are there consequences for vaccination recommendation?

**Prospective non-interventional observational study to assess the safety of two vaccinations of a vero cell derived, whole virus H1N1 pandemic influenza vaccine**

Assessment of safety up to 6 months after 2 vaccinations of the H1N1 vaccine, done by case report forms and personal phone contact.

**Seroprevalence of vaccine induced antibodies in Austrian school children (Ministry of Health, Austria);**

In cooperation with the research unit “Epidemiology & Travel Medicine” the study was initiated in the last quarter of 2007 - ongoing until 2010. Vaccination programs are being evaluated for their scheduling in 350 children between 5-7 years with a complete vaccination record of recommended vaccinations and the presence of vaccine induced antibodies evaluated (diphtheria, tetanus, pertussis, mumps, measles, rubella, hepatitis B).

### 3. Publications


**Book chapters**


**TOTAL Impactfactor: 21,917** corr. IP 18,619
4. Cooperations

National cooperations within the MUW:

Department of Spezifische Prophylaxe & Tropenmedizin:
Unit: Prof. Kollaritsch: Vaccination studies in cooperation with the outpatient clinic for travel medicine; immunological memory and cellular immune responses after vaccination;
H5N1 phase ii/iv and H1N1 observational study
Unit: Prof. Duchêne: Immunological characterization of protozoal and bacterial (Bordetella pertussis) antigens
Unit: Prof. Wernsdorfer: cytotoxicity of plant derived extracts with anti/protozoal effects

Cooperation within the Special Research Program for Allergy (SFB F018): Institute of Pathophysiology: Prof. Breiteneder, Prof. Bohle, Prof. Valenta

Department of Pediatrics, AKH: Prof. A. Pollak
Department of Internal Medicine I (Division Oncology), AKH: Prof. C. Zielinski
Department of Dermatology, AKH: Prof. H. Pehamberger

National Cooperations outside MUW

Prof. F. Ferreira, Institut f. Genetik und allg. Biologie, Universitity of Salzburg
Prof. S. Thalhamer, Institut f. Genetik, University of Salzburg

Prof. A. Joachim, Institut für Parasitologie, VetMed Univ. Wien

BioLife Science (peptid/mimotop vaccine against breast cancer and melanoma)

International cooperations

Prof. Rick Maizels, Institute of Immunology and Infectious Diseases, University of Edinburgh, UK

Dr. Hermeljin Smitts, Medical Center of Parasitology, Cellular Immunology of Helminths, Univ. Leiden, Netherlands


Dr. Annick Mercenier; Head of Bioscience Department, Nestlé Research Center, CH-Lausanne

Dr. Adrian Zürcher, Nestlé Research Center Lausanne

Dr. Bruno Pot; Head of the Institute for Bacteriology and Ecosystems; Institute Pasteur de Lille, France
Dr. Rinaldo Zurbriggen, Pevion Biotech/Berna/Crucell

Prof. Helena Tlaskalova, Dr. Hanka Kozakova; Institute for Immunology and Gnotobiotics; Prague, Tchech Republic

Prof. Jozef Kur, Institute of Microbiology, University of technology, Chemical Faculty, Gdansk, Poland

5. Grants and third party funds

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6. Diploma, PhD-thesis, Lectures

Mag. Elisabeth Hoflehner (Biology/Genetics)
“Production and Characterization of allergen chimers for mucosal treatment of allergic diseases” (PhD student since Sept 2005)

MSc Erika Garner-Spitzer
Master’s Thesis:
“Identification of non-responsiveness to routine vaccines by immunological measures”
submitted at the University of Applied Sciences, Technikum Wien.
Master’s Programme: Biomedical Engineering Sciences

Lectures
SSM3: Methodenseminar Impfwesen und Tropenmedizin/ 2 x 15 Std
Block 8: Wirt - Erreger Interaktion; Grundlagen des Impfwesens/ 3 Std
Basisvorlesung Immunologie/4 Std. (im Rahmen des PhD Programmes „Immunologie“)
Journal Club und Progress Report, 2 Std.

7. Awards, Functions, Patents

Functions
President of the Austrian Society for Tropical Medicine and Parasitology (ÖGTP) (11/09-11/11)

Member of the Austrian Committee for Immunization Practice (ACIP) of the Austrian Supreme Board of Health of the Ministry of Health.

Member of the Pandemic Advisory Board of the Ministry of Health

Speaker of the newly founded Center for Geographic Medicine at the Medical University of Vienna

Member of the working group of “Good Scientific Practice” at the Medical University of Vienna

Head of the Committee for Vaccination of the Austrian Society for Allergology and Immunology

Board member of the Journal International Archives for Allergy and Immunology
Awards and Travel Grants

Mag. Elisabeth Hoflehner
Poster:
“A genetically engineered allergen-chimer as a tool for mucosal tolerance induction in the oral allergy syndrome”
(Travel grant ÖFG)

Dr. Irma Schabussova:
Toxocara canis and it’s gadgets: sweet manipulation
I. Schabussova, J. Grainger, H. Amer, P. Kosma, U. Wiedermann, and R. M. Maizels

Travel Grants:
Keystone Symposia Scholarship
ÖFG travel grant

Dr. Angelika Wagner:
3rd Vaccine Global Congress, vom 4.10 – 6.10.2009, Singapore
Vortrag + poster:
“Vaccination and allergy: the right choice of the adjuvant system as well as the time point of vaccination might influence allergy development”
(Travel grant ÖFG)

Patents
European patent application. “Multiepitope vaccine against Her-2 over expressing breast cancer” (Wiedermann, Breitender, Scheiner, Pehamberger, Zielinski).

8. International Exchange

Student exchange with the Institute of Gnotobiology and Immunology, Prag and Nove Hradec, Czech Republic

9. Referee activity, Editor
Allergy
Clinical and Experimental Immunol
Clinical and Experimental Allergy
Immunology letters
Int. Arch. Allergy Immunol
J. Allergy Clin Immunol
J. of Travel Medicine
PLos ONE
Vaccine
10. Congresses and Presentations

Invited lectures (UW)

35. Internationales Pädiatrisches Symposium, Obergurgl, 21.01. – 24.01.2009
Varying vaccination schedules. Do all roads lead to Rome?

ISW-TBE 2009 Meeting, Baden, 30.01.2009
Low responsiveness after routine vaccination

MIVAC Seminar, Göteborg, 27.02.2009
Hygiene hypothesis and modulation of allergy

Viral Hepatitis Prevention Board Meeting, Antwerpen, 12. – 13.03.2009
Correlation between humoral and cellular immune responses and the expression of the hepatitis A receptor HAVcr-1 on T cells after Hepatitis A vaccination in high and low responder

10th International Jena Symposium on Tick-born Diseases, Weimar, 19 – 21.03.2009
Vaccination, a success story of modern medicine - what more can we expect?

18. Österreichischer Impftag, Salzburg, 28.3.2009
Chair of the Scientific Meeting
Seminar at the Department for Internal Medicine III (Division Nephrology), 28.04. 2009
Vaccination schedules and recommendations in risk populations

CISTM, Budapest, 24. – 27.05.2009
Low responsiveness after hepatitis A vaccination is characterized by a correlation of humoral and cellular immune responses and a low expression of the hepatitis A receptor on CD4+ T cells

Vaccine Forum & Active Immunotherapeutics Forum 2009, Barcelona, 22.06.2009
A phase I study to evaluate safety and immunogenicity of a HER2 multi-peptide virosome vaccine in patients with metastatic breast cancer

Symposium in Geriatric Medicine; Department of Internal Medicine III (Division Rheumatology), 29.09. 2009
Vaccination schedules and vaccination strategies in the Elderly
Vaccine Third Global Congress, Singapur 02. – 08.10.2009
Final results of a phase I study with Her-2/neu multipeptide virosome vaccine in patients with metastatic breast cancer

Annual National Vaccine Symposium, 9.10.2009
Influenza vaccination – Discussion panel

Hitting the mucosal road in tolerance induction: new strategies for allergy treatment in the symposium “Allergy prevention and treatment in early childhood”
Immunotolerance at mucosal surfaces in the symposium: mechanisms of immune regulation of allergic diseases

Congress presentations

Mag. Elisabeth Hoflehner

Poster:
“A genetically engineered allergen-chimer as a tool for mucosal tolerance induction in the oral allergy syndrome”
(Travel grant ÖFG)

ÖGAI, Karl-Landsteiner symposium, November 2009, Salzburg
Poster:

PhD symposium, 17-19.6.2009, Wien
Poster:
“New tools for treatment of the oral allergy syndrome: a genetically engineered allergen-chimer”

7th SFB- Work-in-progress meeting, 5.-6.10.2009, Ottenstein
Vortrag:
“Mucosal tolerance induction: A strategy for prevention and treatment of type I allergy”
Dr. Irma Schabussova

ÖGAI, 5-7 November 2009, Saltsburg, Austria
Poster:
“Perinatal intervention with Lactobacillus paracasei modulates maternal and neonatal immune responses”

Irma Schabussova, Karin Hufnagl, Elisabeth Hoflehner, Angelika Wagner, Adrian Zuercher, Annick Mercenier and Ursula Wiedermann

ICMI, 5-9 July 2009, Boston, USA
Poster:
“Prevention of Allergic Polysensitization and Airway Inflammation in Mice by IL-10-inducing Probiotic Bacteria is Strain Specific and Depends on the Time of Intervention”

Irma Schabussova, Karin Hufnagl, Carmen Wild, Adrian Zuercher, Annick Mercenier, and Ursula Wiedermann

SFB meeting, 13-14 October, Ottenstein, Austria
Oral presentation:
„Perinatal interventions with probiotic bacteria: A strategy for prevention of type I allergy „

Keystone Symposia, 1-5 February, Tahoe City, USA
Poster:
Novel O-methylated glycans from Toxocara activate dendritic cells via TLR2, selectively inhibiting TLR4 responsiveness and IL-12p70 production

I. Schabussova, J. Grainger, H. Amer, P. Kosma, U. Wiedermann, and R. M. Maizels

Oral presentation:
Toxocara canis and it’s gadgets: sweet manipulation

I. Schabussova, J. Grainger, H. Amer, P. Kosma, U. Wiedermann, and R. M. Maizels

Travel Grants:
Keystone Symposia Scholarship
ÖFG travel grant

Dr. Angelika Wagner:

Vortrag:
“Immunomodulatory effect of either Toxoplasma gondii infection or Toxoplasma antigen exposure on allergic sensitisation”
ÖGAI, Karl-Landsteiner symposium, November 2009, Salzburg
Poster:
“Do adjuvanted vaccines increase the risk of allergy development?”

PhD symposium, Wien
Poster:
“Suppression of Typ I allergy by Toxoplasma gondii induced regulatory immune responses”

3rd Vaccine Global Congress, vom 4.10 – 6.10.2009, Singapur
Vortrag + poster:
“Vaccination and allergy: the right choice of the adjuvant system as well as the time point of vaccination might influence allergy development”
(Travel grant ÖFG)

ESIDOG, 10.6.2009, Wien
Vortrag:
„Immunologische Aspekte zum Impfen
– ein kurzer Streifzug durch die Welt der Vakzinologie“
List of the Members of the ISPTM

(P: university postions; G: employed by grants; KV (receipts); w.s. without salary)
In training for “Facharzt für “Spezifische Prophylaxe und Tropenmedizin“ FA

Head of Department:
Ursula Wiedermann-Schmidt  P

Secr. Elisabeth Brunner P (1/2) *
Secr. Nicole Buranich G (1/2)
Indrid Demel  P (1/2) G (1/2)
Secr. Christina Hössel P (3/4)
Secr. Michaela Sedlak  P (1/2)
Secr. Gabriele Szikora P (1/2)

Group leader:
Herbert Auer  P
Talin Barisani  P (1/2)
Michael Duchêne  P
Herwig Kollaritsch  P (1/2)
Harald Noedl  P
Julia Walochnik  G
Walter Wernsdorfer  w.s.
Ursula Wiedermann-Schmidt  P

Postdocs:
Karin Hufnagl  *  G
Eva Jeschko  G
Martina Köhlser  G
Maria Paulke-Korinek  P(1/2) FA
Irma Schabussova  G
Angelika Wagner  G/  FA

Ph. D. students:
Florian Astelbauer  G
Hans-Peter Führer  w.s
Elisabeth Hoflehner  G
David Leitsch  G
Markus Mandl  *  G
Wilawan Pumindonming  w. s.
Peter Starzengruber  G

Diploma students
Oliver Graf  w.s
Michaela Haider  w. s.
Markus Kranzler  w. s.
Kerstin Liesinger  w. s.
Verena Hofecker  w.s
Verena Pecavar  G
Ute Scheikl  P
Anja Siedl  w.s
Sylvia Tippl  G
Michael Syrowatka  w. s.

**Lab technicians:**
Ewa Bielecki  P
Marina Binder  P
Ingrid Blöschl  P
Elzbieta Cholkowski  P (1/2)
Ingrid Feuereis  P (1/2)
Erika Garner-Spitzer  P (3/4)
Motohhareh Gerami-Nejad  P
Susanne Glöckl*  P
Iveta Häfeli  P (1/2)
Joanna Jasinska  P
Sandra Moricz  G
Mara Penava  G
Jacek Pietrzak  G
Renate Schneider  G
Susanne Suhendra  P
Batya Tomann  P 1/2
Onisa Ul-Haq  (1/2)
Hildegard Veigel  G (3/4)
Joanna Will  G (1/2)

**Scientific staff:**
Mirjana Drinic  G
Andreas Hassl  P
Ana Grac  G
Katharina Kastner  G
Renate Kronik  G
Birgit Schmidele-Loss  G
Claudia Seidl-Friedrich  G(1/2) FA
Maria Jellina Vaartjes  G

**Non-Scientific staff:**
Katharina Frank  G
Brigitte Laaber  G (1/2)
Astrid Postl  G
Tanja Trojer  G
Assistant physicians:
Haberfellner Bernhard * P
Horst Aspöck Emeritus

Summe: 72

left the institute 2009 (11 persons):

Marina Binder * retired
Elisabeth Brunner* retired
Ana Grac * job change
Susanne Glöckl* maternity leave
Bernhard Haberfellner * end of training
Karin Hufnagl * maternity leave
Katharina Kastner * job change
Renate Kronik * job change
Markus Mandl * job change
Verena Pecavar * diploma study finished
Maria Jellina Vaartjes * job change