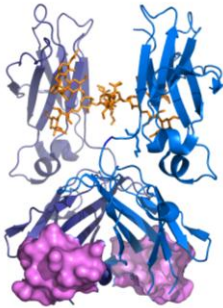


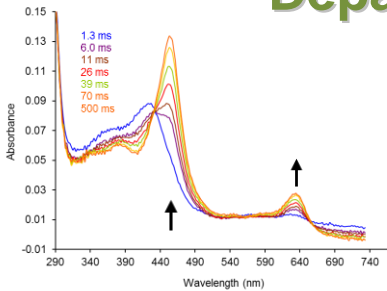


BOKU - University of Natural Resources and Life Sciences

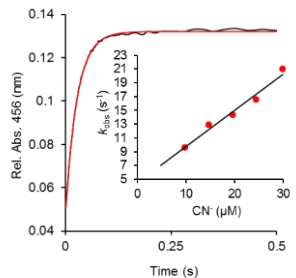
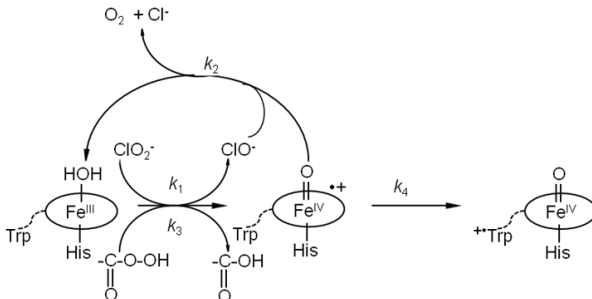
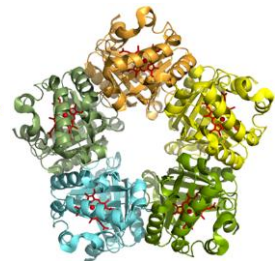
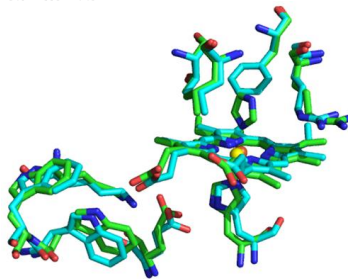
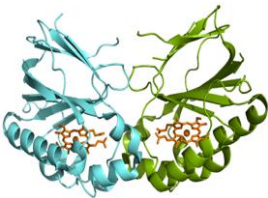


Report 2010 – 2012

Department of Chemistry



$$v = \frac{\left(V_1 + \frac{V_2 [I]}{K_{iu}} \right) \times [S]}{K_M \times \left(1 + \frac{[I]}{K_{ic}} \right) + \left(1 + \frac{[I]}{K_{iu}} \right) \times [S]}$$



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Preface

In continuation of previous reports, the Department of Chemistry presents a summary of its activities for the years 2010-2012, which coincides with the time span of the 3-year contract of the University of Natural Resources and Life Sciences Vienna with the Ministry of Science and Research.

Again the Department has seen a further increase on student numbers, leading to record numbers (more than 330 first semester students in the introductory laboratory courses) for the laboratory courses of the bachelor study programme Food- and Biotechnology. Within the past period, the Department has been actively engaged in the development and implementation of novel curricula in several Bachelor studies and contributes substantially to the revised Master curricula which will start in 2013. The outstanding support by all members of the scientific, technical and administrative staff in efficiently managing the enormous teaching load of the Department is highly appreciated.

Major accomplishments have been achieved in scientific research with many members of the Department being active in international advisory and evaluation boards, at conferences and editorial boards of scientific journals. The number and impact of SCI publications has again been increased, which is also reflected by the fact that chemistry related papers are top-ranked in BOKU-related citations. Funding of ongoing and future research - distributed equally between basic and applied projects – exceeds a level of 4 Mio € per year.

Several highlights of the past three years have to be mentioned. The light-house projects, Christian-Doppler-laboratories „Advanced Cellulose Chemistry and Analytics“ and „Antibody Engineering“ as well as the FWF funded PhD school „Biomolecular Technology of Proteins“ (BioToP) are in full operation and will undergo evaluation in the next few years. Additional projects are being pursued in the context of FFG-funded programmes such the Austrian Centre of Industrial Biotechnology (ACIB), Wood COMET and a forthcoming K-project on Future Lignin and Pulp Processing Research as well as within an impressive number of FWF-funded stand-alone grants. The expertise of the Department in the field of Glycosciences has again successfully been presented to the international scientific community at the 21st International Glycoconjugate Symposium in 2011 in Vienna. The groups of Thomas Rosenau and Thomas Prohaska, respectively, have meanwhile moved to the new campus in Tulln (UFT), where a dynamic development in the field of Chemistry of Renewables will be continued in the forthcoming years.



Vice Rector Prof. Glössl

Prof. Kosma

Prof. Obinger

Doz. Haas

Rector Prof. Gerzabeck

Prof. März

Professor Leopold März has retired by September 2012, and the Department gratefully acknowledges his support and efforts for many years, enabling the fruitful development of the Department. Professor Obinger has meanwhile been appointed as the new chair of protein biochemistry.

Finally, on behalf of the Department I thank all people and institutions of BOKU, the cooperating partners and grant agencies for continuous support and assistance.

Univ.Prof.Dipl.-Ing.Dr. Paul Kosma
Head of Department

Organigramm

H 770 Department für Chemie

Vorstand: Univ.Prof., Dipl.-Ing. Dr. Paul Kosma
Stellvertreter: Univ.Prof., Dipl.-Ing. Dr. Gerhard Stingeder
 Univ.Prof., Mag. Dr. Christian Obinger
 Univ.Prof., Dipl.-Chem. Dr. Thomas Rosenau

Büro des Departments H 770

Geschäftsstelle:
 Luzia Kneisz
 Sonja Ringhofer

Lehrassistent/Innen:
 DI MMag. Dr. Michaela Zeiner (24 h)
 DI Dr. Manfred Schwanninger (30 h)

**Laborant/Innen
 (Support zentraler
 Studienbetrieb):**
 Alexandra Hofinger (karenziert)
 Andrea Kyselá (30 h)
 Philipp Molk
 Thomas Schmidt

Studienassistent/Innen
 Blaumensteiner, Gassler, Kroiß,
 Sackl, Tegl, Weinguny

**Abteilung H 771
 Analytische Chemie**

Leiter:
 Univ.Prof., Dipl.-Ing. Dr. Gerhard Stingeder
 Ao.Univ.Prof. Dipl.-Ing. Dr. Gundula Köllensperger
 Ao.Univ.Prof. Dipl.-Ing. Dr. Thomas Prohaska
 Assoc.Prof., Dipl.-Ing. Dr. Stephan Hann
 Hecca Drexler (Technikerin, 20 h)
 Mario Oberwalder (Techniker, 20 h)
 Jennifer Same (Lehrling)

**Abteilung H 772
 Biochemie**

Leiter:
 O.Univ.Prof., Dipl.-Ing. Dr. Dr. h.c. Leopold März (em.)
 Univ.Prof., Mag. Dr. Christian Obinger
 Ao.Univ.Prof. Dipl.-Ing. Dr. Friedrich Altmann
 Ao.Univ.Prof. Dipl.-Ing. Dr. Paul Furtmüller
 Ao.Univ.Prof., Dipl.-Ing. Dr. Erika Staudacher
 Ao.Univ.Prof., Ventr. Doz. DPhil Iain Wilson
 Ing. Thomas Dalik (Techniker)

**Abteilung H 773
 Organische Chemie**

Leiter:
 Univ.Prof., Dipl.-Ing. Dr. Paul Kosma
 Ass.Prof., Ing. Dipl.-Ing. Dr. Andreas Hofinger-Horvath
 Ass.Prof., Dr. Alla Zamyatina (A2)
 Maria Hobel (Technikerin)
 Philip Lackner (Lehrling)

Univ.Prof., Dipl.-Chem. Dr. Thomas Rosenau
 Ao.Univ.Prof., Dipl.-Chem. Dr. Antje Potthast (30 h)
 Dipl.-Rest., Dr. Ute Henniges (20 h)
 Ass.Prof. Dr., Falk Liebner (A2)
 Senior Scientist Dipl.-Ing. Dr. Stefan Böhmendorfer
 Dipl.-Ing. Gerhard Ebner (Techniker)
 Dipl.-Ing. Dr. Sonja Schießer (20 h, Technikerin)
 Mag. Dr. Markus Bacher (20 h, Techniker)

Personnel

Director of the Department

Univ.Prof. Dipl.-Ing. Dr. Paul Kosma

Deputy Directors of the Department

Univ.Prof. Mag. Dr. Christian Obinger

Univ.Prof. Dipl.-Ing. Dr. Gerhard Stingeder

Univ.Prof. Dipl.-Chem. Dr. Thomas Rosenau

Full professors

O.Univ.Prof. Dipl.-Ing. Dr. Dr.h.c. Leopold März (emer.)

Univ.Prof. Dipl.-Ing. Dr. Paul Kosma

Univ.Prof. Mag. Dr. Christian Obinger

Univ.Prof. Dipl.-Chem. Dr. Thomas Rosenau

Univ.Prof. Dipl.-Ing. Dr. Gerhard Stingeder

Associate professors

Ao.Univ.Prof. Dipl.-Ing. Dr. Friedrich Altmann

Ao.Univ.Prof. Dipl.-Ing. Dr. Paul G. Furtmüller

Assoc.Prof. Dipl.-Ing. Dr. Stephan Hann

Ao.Univ.Prof. Dipl.-Ing. Dr. Gunda Köllensperger

Ao.Univ.Prof. Dipl.-Chem. Dr. Antje Potthast

Ao.Univ.Prof. Dipl.-Ing. Dr. Thomas Prohaska

Ao.Univ.Prof. Dipl.-Ing. Dr. Erika Staudacher

Ao.Univ.Prof. Dr. Iain B.H. Wilson

Assistant professors

Univ.Ass. Dipl.-Ing. Dr. Stefan Böhmendorfer

Dipl.-Ing. Dr. Christine Haberhauer-Troyer

Univ.Ass. Dipl.-Rest. Dr. Ute Henniges, part time

Ass.Prof. Dipl.-Ing. Dr. Andreas Hofinger-Horvath

Ass.Prof. Dipl.-Chem. Dr. Falk Liebner

Dipl.-Ing. Dr. Manfred Schwanninger, part time

Dipl.-Ing. Mag. Dr. Michaela Zeiner, part time

Ass.Prof. Dr. Alla Zamyatina, part time

Secretary

Luzia Kneisz

Sonja Ringhofer



Sonja Ringhofer

Luzia Kneisz

Technical Staff

Ing. Halimat Ahmatowa, part time

Mag. Dr. Markus Bacher, part time

Ing. Thomas Dalik

Hedda Drexler, part time

Dipl.-Ing. Gerald Ebner, part time

Christiane Gollner, part time

Maria Hobel

Mario Oberwalder, part time

Dipl.-Ing. Dr. Sonja Schiehser, part time

General Laboratory Staff

Alexandra Hofinger (maternity leave)

Andrea Kysela, part time

Philipp Mölk

Thomas Schmidt



Thomas Schmidt

Andrea Kysela

Philipp Mölk

Trainees

Philip Lackner

Karin Hofbauer

Jennifer Sarne

Claudia Schweritz

Assistent lecturers

Bernadette Blauensteiner

Thomas Gaßler

Daniela Kroiß

Andrea Nicolussi

Elisabeth Sackl

Klara Soukup

Leander Sützl

Gregor Tegl

Marcus Weinguny

External Lecturers

Univ.Doz. Dr. Bernhard Fischer
Ao.Univ.Prof. Dipl.-Ing. Dr. Karl Stich
Univ. Prof. Dr. Frank Unger

(Project) Personnel

Dipl.-Ing. Florian Adanitsch
M.Sc. Kyujin Ahn
Dr. Hassan Abdelzaher Mohamed Amer
Dipl.-Ing. (FH) Daniel Artner
Dipl.-Ing. Markus Auer
Prof.em. Dr. Gerhard Banik
Dr. Marek Barath since 2012
Dipl.-Ing.Dr. Alexander Bauer
Dipl.-Ing. David Baum
M.Sc. Manuel Stefan Becker
Dipl.-Ing. Dr. Markus Blaukopf
Dr. Peter Both until 2010
Dr. Azamat Boymirzaev
Prof. Dr. Fangeng Chen
Mag. Veronika Chromikova
M.Sc. Dinh Binh Chu
Dipl.-Ing. Michaela Ciglanska
M.Sc. Sylvia Dietrich
Dr. Martin Dragosits
Mag. Johannes Draxler
Mag. Madeleine Dellmour until 2010
M.Sc. Ting Du, until 2011
Ramona-Mirabela Dunareanu
Dipl.-Ing. Gerald Ebner
Dipl.-Ing. Thomas Falta, until 2011
Mag. Dr. Lisa Fischer
Dr. Wolfhardt Freinbichler
Richard Fried
Mag. Josephine Grass, until 2011
Dipl.-Ing. Bernhard Gasslhuber
Dipl.-Ing. Clemens Gruber
M.Sc Raffaele Guerrasio (ACIB)
Mag. Ondřej Hanousek
Mag. Andreas Hartl

Dr. Merima Hasani
Dipl.-Ing. Dr. Emmerich Haimer, until 2011
Dipl.-Ing. Christoph Hasenhindl
Dipl.-Ing. Johannes Hell
Dipl.-Ing. Wilhelm Herok, until 2011 (Wood Kplus)
Dipl.-Ing. Gerrit Hermann
Mag. Hubert Hettegger
Mag. Ralph Hollaus
Dipl.-Ing. Stefan Hofbauer
Karin Hofbauer
Mag. Monika Horsky
Dr. Takashi Hosoya
Dipl.-Ing. Dr. Alba Hykollari
Dipl.-Ing. Johanna Irrgeher
Dipl.-Ing. Dr. Christa Jakopitsch
Dr. Leonhard Jaitz
Dr. Myung-Joon Jeong
Dr. Carmen Jiménez Castells
Dipl.-Ing. Stefanie Kappel
Dr. Sonja Kirschnerova, until 2011
M.Sc. Kristaps Klavins (ACIB)
M.Sc. Karl Michel Klinger
Mag. Philipp Korntner
Mag. Dr. Daniela Kretschy
Dipl.-Ing. Simone Kurz
Dipl.-Ing. Elisabeth Lackinger
Dipl.-Ing. Chantal Lucini
Dr. Renaud Léonard
Dipl.-Ing. Bernhard Müller
M.Sc. Christine Betty Nagawa
Dr. Stephan Neubauer
Mag. Laura Neumann
Dipl.-Ing. Dr. Martina Opietnik, until 2011
Mag. Dr. Martin Pabst, until 2011
Dipl.-Ing. Dr. Dieter Palmberger
Dipl.-Ing. Dr. Martina Paumann-Page, since 2012
Dipl.-Ing. Dr. Katharina Paschinger
M.Sc. Dr. Anjan Patel, until 2011
M.Sc. Dr. Ilabahan Patel, until 2010
Mag. Nicole Pircher
Ing. Karin Polacsek
Barbara Pokorny

Dipl.-Ing. Dr. Georg Pour, until 2010
Dipl.-Ing. Evelyn Rampler
M.Sc. Ariana Rugova
Dipl.-Holzwirt Dr. Axel Rußler, until 2011
Dipl.-Ing. Christian Schimper
Dipl.-Ing. Dr. Sonja Schiehser
Mag. Yvonne Schindlegger
Dr. Milica Sevo
Dipl.-Ing. Martin Siller
Dipl.-Ing. Monika Soudi
Dr. Christina Stadlbauer, until 2010
Dipl.-Ing. Dr. Johannes Stadlmann until 2011
Dipl.-Ing. Gerhard Stadlmayr
Dipl.-Ing. Johanna Maria Stampler, until 2011
Dipl.-Ing. Dr. Christian Stanetty
Dipl.-Ing. Bojan Stefanovic
M.Sc. Irina Sulaeva
Dipl.-Ing. Herwig Stepan, until 2010
Dr. Sharifah Nabihah Syed Jaafar
M.Sc. Christopher Taus
Mag. AndreasThader
Dipl.-Ing. Johannes Tintner
Dipl.-Chem. Dr. Ivana Tot, until 2010
Dipl.-Ing. Michael Traxlmayr
M. Sc. Matyas Tursky, until 2012
Dipl.-Ing. Philipp Vejdovszky
Dipl.-Ing. Dr. Josef Voglmeir
Dipl.Chem. Martin Walter
Ing. Christopher Weiß
Dr. Marcel Wieland
Dipl.-Ing. Markus Windwarder
Dr. Nuno Xavier, until 2011
M.Sc. Shi Yan
Prachit Yuwang
Dr. Marcel Zamocky
M.Sc. Lubna Zeb
Dr. Andreas Zitek
Dipl.-Ing. Dr. Thomas Zweckmair

Lectures and Practical Courses

The Department of Chemistry takes part in the teaching of all major degree courses at the BOKU. The degree course in Food Science and Biotechnology (LBT) includes a broad education in chemistry. The other degree courses have mandatory lecture courses in General Chemistry and optional courses for specialisation.

Lectures and courses 2012 (Bachelor- and Masterstudies)

771004	Seminar in Analytical Chemistry for PhD Candidates	2	SE	Stingeder G, Prohaska T, Köllensperger G, Hann S
771040	Master's Thesis Seminar	2	SE	Stingeder G, Prohaska T, Köllensperger G, Hann S
771091	Advanced Analytical Techniques for Elemental Trace and Isotope Analysis	2	VO	Boulyga S, Bürger S
771101	Introduction into General Chemistry	2	VO	Stingeder G
771102	Introduction to General Chemistry, Practical Course	2	UE	Hann S, Köllensperger G, Prohaska T, Stingeder G, Potthast A, Schuhmacher R, Schwanninger M, Zeiner M, Lagoja I, Haberhauer-Troyer C, Liebner F
771106	Practical Course in Instrumental Analytical and Physical Chemistry	6	UE	Hann S, Stingeder G, Kosma P, Hofinger-Horvath A, Schwanninger M, Berthiller F, Henniges U, Hermann G, Kandler W, Köllensperger G, Kretschy D, Prohaska T, Rampler E, Rosenau T, Schindlegger Y, Sulyok M, Viehauser P, Zeiner M
771107	General and Physical Chemistry	4	VO	Stingeder G, Köllensperger G, Prohaska T
771118	Calculation in Chemistry I	1	VU	Prohaska T
771004	Seminar in Analytical Chemistry for PhD Candidates	2	SE	Stingeder G, Hann S, Köllensperger G, Prohaska T
771040	Master's Thesis Seminar	2	SE	Stingeder G, Hann S, Köllensperger G, Prohaska T
771089	Metrology in Chemistry - the Science of Measurement	1	VO	Prohaska T
771090	Holistic Science	1	VO	Prohaska T
771101	Introduction into General and Analytical Chemistry	2	VO	Stingeder G
771105	Practical Course in Classical Analytical Chemistry	7	UE	Hann S, Zeiner M, Berthiller F, Haberhauer-Troyer C, Henniges U, Kandler W, Köllensperger G, Kosma P, Löppert R, Prohaska T, Rampler E, Schindlegger Y, Schuhmacher R, Schwanninger M, Stingeder G, Sulyok M, Viehauser P
771108	Analytical Chemistry	4	VO	Stingeder G, Hann S
771303	Environmental Analysis	2	VO	Stingeder G, Hann S, Köllensperger G, Loibner A
771304	Environmental Chemistry	3	SE	Stingeder G, Hann S, Köllensperger G, Loibner A
771314	Instrumental Analytical Chemistry for Master Students	3	VU	Hann S, Köllensperger G, Prohaska T
771315	Practical Course on Instrumental Analysis	4	UE	Stingeder G, Hann S, Prohaska T
771316	Calculation in Chemistry II	1	VU	Prohaska T

772003	Master's Thesis Seminar	2	SE	Altmann F, Furtmüller P, Obinger C, Staudacher E, Wilson I
772015	Doctoral Seminar in Biochemistry	2	SE	Altmann F, Furtmüller P, Obinger C, Staudacher E, Wilson I
772108	Fundamentals of Biochemistry	3	VO	Altmann F
772112	Practical Course in Biochemistry I	5	UE	Altmann F, Staudacher E, Wilson I, Furtmüller P, Viehauser P Böhmdorfer S, Dragosits M, Taus C
772302	Proteinchemistry	2	VO	Fischer B
772305	Practical Course in Biochemistry II	5	UE	Furtmüller P, Obinger C Staudacher E, Wilson I Dragosits M, Gruber C, Stadlmayr G, Traxlmayr M
772307	Glycobiology	2	VO	Wilson I, Rendic D, Hykollari A, Jimenez Castells C, Yan S
772309	Biochemistry of trace elements	2	VO	Obinger C
772312	Plant Biochemistry	2	VO	Stich K
772316	Biochemical Seminar	2	SE	Staudacher E
772317	Advanced Practical Course in Biochemistry	3	PR	Altmann F, Furtmüller P, Obinger C, Staudacher E, Wilson I, Dragosits M, Taus C
772321	Biochemical and Biotechnological Methods	3	VU	Staudacher E, Vorauer-Uhl K
772401	Basic Course I - Analysis, Design and Engineering of Proteins (in Eng.)	2	VO	Obinger C, Haltrich D, Kosma P, Messner P, Peterbauer C, Rümer F, Schäffer C
772409	Instructional Course IA - Spectroscopic Analysis of Proteins (in Eng.)	2	UE	Furtmüller P, Jakopitsch C, Schwanninger M
772411	Instructional Course IIA - Mass Spectrometric Analysis of Proteins and Proteomics (in Eng.)	2	UE	Altmann F, Köllensperger G, Windwarder M
772498	Improve your presentation skills I (in Eng)	2	SE	Kainz W
772499	Improve your presentation skills I (in Eng)	2	SE	Kainz W
772003	Master's Thesis Seminar	2	SE	Altmann F Furtmüller P, März L, Obinger C, Staudacher E, Wilson I
772015	Doctoral Seminar in Biochemistry	2	SE	Altmann F Furtmüller P, März L, Obinger C, Staudacher E, Wilson I
772099	Blood and Blood Coagulation	1	VO	Weber V
772112	Practical Course in Biochemistry I	5	UE	Altmann F, Furtmüller P, Obinger C, Staudacher E, Wilson I, Viehauser P, Böhmdorfer S, Taus C
772114	Biochemistry of Metabolism	3	VO	Obinger C
772300	Biophysical Chemistry	2	VU	Wilson I
772304	Protein Chemistry and Protein Engineering	3	VU	Furtmüller P, Ludwig R, Obinger C, Oostenbrink C, Peterbauer C, Rümer F
772305	Practical Course in Biochemistry II	5	UE	Furtmüller P, Altmann F, Obinger C, Staudacher E, Wilson I, Dragosits M, Pabst M, Stadlmayr G, Viehauser P
772306	Proteomics	2	VU	Altmann F
772310	Biomolecular spectroscopy	3	VO	Obinger C, Schwanninger M, Gierlinger N, Pirker K
772311	Kinetics of Biochemical Reactions	2	VU	Furtmüller P
772317	Advanced Practical Course in Biochemistry	3	PR	Altmann F, Furtmüller P, Obinger C, Staudacher E, Wilson I, Taus C
772418	Journal Club BioToP II (in Eng.)	1	SE	Altmann F, Mach L, Steinkellner H, Strasser R, Wilson I

773001	Paper Material of past and future	2	VO	Banik G
773108	Practical Course in Organic Chemistry	3	UE	Hofinger-Horvath A, Kosma P, Potthast A, Rosenau T, Zamyatina A, Adanitsch F, Blaukopf M, Stanetty C
773109	Chemistry for NAWAROS	1	UE	Böhmendorfer S
773110	Biomaterial Chemistry	2	VO	Liebner F
773112	Organic Chemistry for LBT	3	VO	Kosma P
773312	Chemistry and technology of sustainable resources	2	VS	Potthast A, Rosenau T
773314	Biopolymers for sustainable utilization	2	VO	Henniges U, Potthast A
773325	Chemistry and technology of polymers	2	VU	Rosenau T, Liebner F
773326	to be provided	2	VO	Baumgartner S, Böhmendorfer S
773327	Chemistry and technology of polymers	2	VO	Liebner F, Rosenau T
773572	Master's Thesis Seminar	2	SE	Kosma P, Potthast A, Rosenau T
773803	Doctoral Seminar in Bioorganic Chemistry	2	SE	Kosma P, Potthast A, Rosenau T
773002	Understanding Carbohydrates and Cellulose with Computation and Crystallograph	2	VO	French A
773108	Practical Course in Organic Chemistry	3	UE	Hofinger-Horvath A, Kosma P, Potthast A, Rosenau T, Zamyatina A, Blaukopf M, Hollaus R, Stanetty C
773111	Practical Course in Chemistry for KTWW	3	UE	Hofinger-Horvath A, Potthast A, Sackl E
773119	Practical Course in Basic Chemistry	4	UE	Hofinger-Horvath A, Liebner F, Loibner A, Sackl E, Zamyatina A
773120	Organic Chemistry	2	VO	Hofinger-Horvath A
773125	Chemical Technology of Biobased Materials	2	VO	Potthast A
773310	Bioorganic Chemistry	2	VO	Kosma P
773313	Modern methods in structural analyses	3	VU	Kosma P, Potthast A, Hofinger-Horvath A
773315	Plant Polysaccharide Analysis	2	VU	Henniges U
773322	Chemistry for civil engineers	2	VO	Liebner F
773572	Master's Thesis Seminar	2	SE	Kosma P, Rosenau T, Potthast A
773803	Doctoral Seminar in Bioorganic Chemistry	2	SE	Kosma P, Potthast A, Rosenau T

Furthermore members of the department are involved in lectures of other departments

941320	Cell- und Molecularbiology	6	VO	Borth N, Mach L, Rükler F, Seifert G, Staudacher E, Wilson I,
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For more details look at <http://www.chemie.boku.ac.at/299.html>

List of abbreviations:

SE Seminar
VO Lecture Course
VU Lecture with Exercise

AW Agriculture Sciences
UE Practical Course
LBT Food Sciences and Biotechnology
EE Environmental Engineering

Doctoral and Diploma Theses

Division of Analytical Chemistry

Madeleine Dellmour

Development of novel methods for the analysis of root exudates

Doctoral thesis 2010

Supervisor: Stephan Hann

Chu Dinh Binh

LC-ICP-MS based speciation analysis in environmental and biological samples

Doctoral thesis since 2011

Supervisor: Stephan Hann

Johannes Draxler

Investigation of degradation products of novel implant materials used in accident surgery

Doctoral thesis since 2012

Supervisor: Thomas Prohaska

Ondrej Hanousek

Determination of S isotope ratios in environmental samples

Doctoral thesis since 2012

Supervisor: Thomas Prohaska/Torsten Berger

Yvonne Schindlegger

Method development for the analysis of phytosiderophores and their metal complexes

Doctoral thesis since 2011

Supervisor: Stephan Hann

Stefan Nauer

Typische und untypische Aromen der Sorte Grüner Veltliner

Doctoral thesis since 2011

Supervisor: Stephan Hann

Kristaps Klavins

Quantitative mass spectrometry based bioassays in the cell fabric yeast

Doctoral thesis since 2011

Supervisor: Gunda Köllensperger

Raffaele Guerrasio

Mass spectrometric methods for metabolic flux analysis

Doctoral thesis since 2010

Supervisor: Stephan Hann

Gerrit Hermann

Speciation analysis in the field of metallodrug research

Doctoral thesis since 2010

Supervisor: Gunda Köllensperger

Monika Horsky

Analyses of novel and established isotopic systems for the investigation of exological processes and provenance studies of plant material

Doctoral thesis since 2010

Supervisor: Thomas Prohaska

Evelyn Rampler

Characterisation of the Yeast Cell Wall

Doctoral thesis since 2010

Supervisor: Gunda Köllensperger

Daniela Kretschy

Elemental Labelling of Peptides in Preclinical Drug Development

Doctoral thesis 2012

Supervisor: Stephan Hann

Ariana Rugova

LC-ICP-MS speciation of phosphorus in soil and plant related samples

Doctoral thesis since 2009

Supervisor: Stephan Hann

Monika Sturm

Certification exercises of radionuclides

Doctoral thesis since 2009

Supervisor: Thomas Prohaska

Stefan Neubauer

LC-MS based Metabolomics in Yeast

Doctoral thesis 2012

Supervisor: Gunda Köllensperger

Johanna Irrgeher

Migration studies using Sr isotopic fingerprints

Doctoral thesis since 2009

Supervisor: Thomas Prohaska

Stefanie Kappel

Radionuclide fingerprinting in single particles by LA-MC-ICP-MS

Doctoral thesis 2012

Supervisor: Thomas Prohaska

Christoph Puls

Ultrapurenanalyse von Pt, Pd, und Rh in Umweltproben

Doctoral thesis since 2008

Supervisor: Stephan Hann

Lubna Zeb

Multi-element and isotope ratios analysis in biological samples for forensic applications

Doctoral thesis 2012

Supervisor: Thomas Prohaska

Marion Brunner

Development of analytical technologies for the determination of the origin and authenticity of food and feed

Doctoral thesis 2011

Supervisor: Thomas Prohaska

Thomas Falta

Entwicklung von Speziierungsmethoden (LC-ICP-MS) für Verfahren zur Elimination prioritärer Metalle aus Abwässer

Doctoral thesis 2010

Supervisor: Stephan Hann

Lisa Fischer

Entwicklung von Multielement-Speziierungsmethoden (GC-ICP-MS) für Verfahren zur Elimination prioritärer Metalle in Wasser

Doctoral thesis 2011

Supervisor: Stephan Hann

Leonhard Jaitz

Entwicklung von LC-MS Methoden im Rahmen des BOKU Netzwerkes für Schad- und Naturstoffanalytik

Doctoral thesis 2010

Supervisor: Stephan Hann

Dominique Kreutz

Elemental and isotopic analysis by (MC)-ICP-MS in human teeth from the Early Bronze Age excavation site Franzhausen I (Lower Austria) for the investigation of population dynamics and dietary patterns

Diploma thesis 2011

Supervisor: Thomas Prohaska

Sarah Theiner

The use of strontium isotope ratio measurements by MC-ICP-MS for fundamental studies on diagenesis and for the reconstruction of animal migration at the Celtic excavation site Roseldorf

Diploma thesis 2011

Supervisor: Thomas Prohaska

Gerrit Hermann

Analysis of (poly)phenols in red wine via LC-MS

Diploma thesis 2010

Supervisor: Stephan Hann

Katherina Sailer

The potential of microchemical information in fish otoliths to study origin and migrations in the Austrian part of the Danube catchment

Diploma thesis 2012

Supervisor: Thomas Prohaska

Wen Chen

Speziesanalytik in der präklinischen Entwicklung von KP1019

Diploma thesis 2011

Supervisor: Gunda Köllensperger

Barbara Lehner

Determination of the geographical origin of coffee beans via elemental & isotopic fingerprinting using ICP-MS

Diploma thesis 2011

Supervisor: Thomas Prohaska

Magdalena Lang

Food authenticity studies of coffee using isotopic and elemental fingerprinting by ICP-MS

Diploma thesis 2010

Supervisor: Thomas Prohaska

Monika Horsky

Determination of the provenance of historic wood samples by isotopic fingerprinting

Diploma thesis 2010

Supervisor: Thomas Prohaska

Stephanie Schweigkofler

Sr and S isotope ratios in food for provenance studies

Diploma thesis 2010

Supervisor: Thomas Prohaska

Anna Regelsberger

LC-ICP-MS based analysis of phytosiderophore - metal complexes in soil related samples

Diploma thesis since 2011

Supervisor: Stephan Hann

Florian Kendlbacher

Determination of the origin of fish in river systems using elemental and isotopic fingerprints

Diploma thesis since 2011

Supervisors: Thomas Prohaska, Andreas Zitek, Herwig Waidbacher

Zana Milisavic

Elimination of pharmaceuticals from industrial wastewater

Diploma thesis 2011

Supervisor: Stephan Hann

Bernhard Beyer

Development of LC-MS-methods for the quantification of condensed anthocyanins and their usage for determining the age of red wine

Diploma thesis since 2011

Supervisor: Stephan Hann

Regina Huber

Analysis of the Microchemical Composition of Fish Hard Parts using Laser Ablation ICP-MS

Diploma thesis 2011

Supervisor: Thomas Prohaska

Karin Ortmayr

LC-MS analysis of NADP/NADPH in yeast

Diploma thesis since 2012

Supervisor: Gunda Köllensperger

Karla Pelivan

Quantitative determination of thiosemicarbazones in preclinical studies

Diploma thesis since 2012

Supervisor: Gunda Köllensperger

Matthias Holzlechner

General unknown screening of Whisky via LC-TOFMS

Diploma thesis since 2012

Supervisor: Stephan Hann

Johanna Smolle

GC-MS analysis in quantitative metabolomics of yeast

Diploma thesis since 2012

Supervisors: Christine Haberhauer, Gunda Köllensperger

Barbara Zipfel

Rückstandsanalytik in pharmazeutischen Proben

Diploma thesis since 2012

Supervisor: Stephan Hann

Theresa Mairinger

Elemental labeling of antibodies

Diploma thesis since 2012

Supervisor: Stephan Hann

Sophie Gangl

Sr isotope ratio measurements to determine the provenance of the early medieval settlement in Thunau/Kamp

Diploma thesis since 2012

Supervisor: Thomas Prohaska

Leo Kirchmayer

Determination of elemental and isotopic fingerprints in fish hard parts using LA-ICPMS

Diploma thesis since 2012

Supervisor: Thomas Prohaska

Division of Biochemistry / Glycobiology**Chantal Lucini**

Fucosyltransferases in gastropods

Doctoral thesis since 2010

Supervisor: Erika Staudacher

Herwig Stepan

Enzymes involved in the O-glycosylation of gastropods

Doctoral thesis 2012

Supervisor: Erika Staudacher

Christopher Taus

Xylosyltransferasen in Gastropoden

Doctoral thesis since 2010

Supervisor: Erika Staudacher

Josephine Grass

Characterization of recombinant glycoproteins and specific structural features of oligomannosidic glycans of fungi, plants and mammals

Doctoral thesis 2011

Supervisor: Friedrich Altmann

Richard Fischl

Fucosylation and Defucosylation of Cell Wall Compounds in *Arabidopsis thaliana*

Doctoral thesis 2011

Supervisor: Friedrich Altmann, Renaud Léonard

Laura Neumann

Messung der Interaktion von Influenza-Hemagglutinin und Glykanen

Doctoral thesis since 2010

Supervisor: Friedrich Altmann

Clemens Gruber

Proteomics of biotechnological expression hosts

Doctoral thesis since 2010

Supervisor: Friedrich Altmann

Andreas Thader

Isomer-specific analysis of glycoproteins of the brain

Doctoral thesis since 2010

Supervisor: Friedrich Altmann

Heo Seok

Identification and characterization of serotonin receptors from rat/mouse hippocampus by gel-based proteomics

Doctoral thesis 2012

Supervisor: Friedrich Altmann

Alba Hykollari

Glycosylation in *Dictyostelium discoideum*

Doctoral thesis 2012

Supervisor: Iain Wilson

Birgit Schiller

Glycosylation in *Acanthamoeba*

Doctoral thesis 2012

Supervisor: Iain Wilson

Shi Yan 闫石

Glycosyltransferases and glycosidases from invertebrates

Doctoral thesis 2012

Supervisor: Iain Wilson

Simone Kurz

Expression cloning of immunomodulatory glycan-modifying enzymes in insect cells

Doctoral thesis since 2010

Supervisor: Iain Wilson

Rhiannon Stanton (matriculated at Uni Wien)

Development and exploitation of non-vertebrate glycan microarrays

Doctoral thesis since 2012

Supervisors: Iain Wilson, Verena Jantsch

Zhou Jie 周捷

Glycosylation of *Aspergillus fumigatus*

Diploma thesis 2012

Supervisors: Iain Wilson, Josef Voglmeir

Simone Kurz

Galactosylated epitopes in invertebrates and protozoa

Diploma thesis 2010

Supervisor: Iain Wilson

Andrea Rosenberger

Xylose metabolism in *Trichomonas vaginalis*

Diploma thesis 2010

Supervisor: Iain Wilson

Huijie Wang 王慧捷

N-acetylglucosaminyltransferases from *C. elegans* and *D. melanogaster*

Diploma thesis 2010

Supervisor: Iain Wilson

Elisabeth Svehla

Immunogenicity of Arabinosyl allergen from Mugwort pollen

Diploma thesis since 2011

Supervisor: Friedrich Altmann

Theresa Riegler

Preparation and characterization of substrates for snail enzymes

Diploma thesis 2011

Supervisors: Erika Staudacher, Herwig Stepan

Angelika Schrattenholzer

Prozessdauer und – temperatur als Einflußfaktoren in der pharmazeutischen Produktion von Blutgerinnungsfaktoren

Diploma thesis 2012

Supervisor: Erika Staudacher

Elisa Gritsch

Relation between circadian rhythms in white adipose tissue and obesity

Diploma thesis 2012

Supervisor: Erika Staudacher

Marita Preims

Lektine aus Schnecken

Diploma thesis since 2012

Supervisor: Erika Staudacher

Karin Lorenz

Diploma thesis since 2012

Supervisor: Erika Staudacher

Division of Biochemistry / Protein Biochemistry

Markus Auer

Cloning and characterization of human eosinophil peroxidase in HEK cells

Doctoral thesis since 2009

Supervisor: Christian Obinger, Paul Furtmüller

Srijib Banerjee

Dynamics of structure and function of metalloproteins

Doctoral thesis 2011

Supervisors: Christian Obinger, Paul Furtmüller

Bernhard Gasselhuber

Reaction mechanism of catalase-peroxidases

Doctoral thesis since 2012

Supervisors: Christian Obinger, Paul Furtmüller

Christoph Hasenhindl

Loop design and engineering of CH3 domains of IgG-1

Doctoral thesis since 2011

Supervisor: Christian Obinger

Monika Soudi

Human peroxidases – Recombinant expression and biophysical characterization

Doctoral thesis since 2011

Supervisors: Christian Obinger, Paul Furtmüller

Stefan Hofbauer

Structure-function analysis of bacterial chlorite dismutases

Doctoral thesis since 2011

Supervisors: Christian Obinger, Paul Furtmüller

Johanna Stampler

Cloning and characterization of human Lactoperoxidase in HEK-cells

Doctoral thesis 2011

Supervisor: Christian Obinger, Paul Furtmüller

Michael Traxlmayr

Stability engineering of IgG1-Fc by random mutagenesis and in vitro directed evolution.

Doctoral thesis 2012

Supervisor: Christian Obinger

Christoph Hasenhindl

Stabilising mutations in the antibody CH2 domain

Diploma thesis since 2010

Supervisor: Christian Obinger

Clemens Gruber

Expression, purification and characterization of the myeloperoxidase variants R333A and R333K

Diploma thesis 2010

Supervisors: Christian Obinger, Paul Furtmüller

Monika Soudi

Characterization of the myeloperoxidase mutant Asn421Asp produced in CHO and HEK cells

Diploma thesis 2010

Supervisors: Christian Obinger, Paul Furtmüller

Anna Hofbauer

Expression, purification and characterization of recombinant human tissue factor pathway inhibitor (rhTFPI)

Diploma thesis 2010

Supervisor: Paul Furtmüller

Mario Wagner

Thermodynamics and kinetic of end-loop formation in DNA hairpins

Diploma thesis 2010

Supervisor: Paul Furtmüller

Marcus Motz

Eukaryotic intracellular and extracellular catalase-peroxidases

Diploma thesis since 2010

Supervisors: Christian Obinger, Paul Furtmüller

Alexander Teufer

Cyanobacterial heme peroxidases with homology to lactoperoxidase

Diploma thesis 2011

Supervisors: Christian Obinger, Paul Furtmüller

Max Faissner

Recombinant production and structural investigation of engineered IgG-Fcs

Diploma thesis 2010

Supervisor: Christian Obinger

Irene Schaffer

Stability engineering of IgG1-Fc to resist boiling

Diploma thesis 2012

Supervisor: Christian Obinger

Elisabeth Loiber

Directed evolution of a HER2-binding IgG1

Diploma thesis since 2012

Supervisor: Christian Obinger

Martina Setz

New strategies in library design and selection for increasing the sequence space

Diploma thesis since 2012

Supervisor: Christian Obinger

Andrea Ramspacher

Design of heterodimeric IgG-Fc proteins

Diploma thesis since 2012

Supervisor: Christian Obinger

Andrea Nicolussi

Mechanism studies on eukaryotic secreted catalase-peroxidases

Diploma thesis since 2012

Supervisor: Christian Obinger, Paul Furtmüller

Andrea Graf

Recombinant production of the peroxidase domain of human peroxidasin I

Diploma thesis since 2012

Supervisor: Christian Obinger, Paul Furtmüller

Michael Andesner

Detection and Characterization of Thrombin Species in Presence of Abundant Human Albumin

Diploma thesis 2012

Supervisor: Paul Furtmüller

Division of Organic Chemistry / Glycochemistry**Christian Stanetty** (TU Wien)

Neue glycosylierte Triterpene

Doctoral thesis 2010

Supervisor: Paul Kosma

Markus Blaukopf

Aminoarabinose-Epitope

Doctoral thesis 2011

Supervisor: Paul Kosma

Bernhard Müller

Aminoarabinosephosphat-Epitope

Doctoral thesis since 2007

Supervisor: Paul Kosma

Wilhelm Herok

Synthese von Xylanfragmenten

Doctoral thesis since 2008

Supervisor: Paul Kosma

Daniel Artner

Synthese von Lipoid A Mimetika

Doctoral thesis since 2009

Supervisors: Alla Zamyatina, Paul Kosma

David Baum

Synthese von Galactosamin-substituiertem Lipid A

Doctoral thesis 2012

Supervisors: Alla Zamyatina, Paul Kosma

Ralph Hollaus

Synthese von Aminoarabinose-substituiertem Lipid A

Doctoral thesis since 2008

Supervisors: Alla Zamyatina, Paul Kosma

Florian Adanitsch

Synthese von Lipoid A Mimetika

Doctoral thesis since 2009

Supervisors: Alla Zamyatina, Paul Kosma

Barbara Pokorny (TU Wien)

Synthese von Acinetobacter LPS Liganden

Doctoral thesis since 2012

Supervisor: Paul Kosma

Alexander Doppelreiter (FH)

Synthese von Derivaten der Glycyrrhetinsäure

Diploma thesis 2010

Supervisor: Paul Kosma, Christian Stanetty

Alexander Gadinger

Synthese von Heptosedisacchariden

Diploma thesis 2010

Supervisor: Paul Kosma

Barbara Wagenknecht

Synthese von β -Integrinantagonisten

Diploma thesis 2011

Supervisor: Paul Kosma, Christian Stanetty

Zhanat Karzhaubekova (Univ. Hohenheim)

Analysis and isolation of xylonic acid (lactones)

Diploma thesis 2011
Supervisor: Paul Kosma

Andrea Seeböck

Synthese von Toxocara-canis Antigenen
Diploma thesis 2012
Supervisor: Paul Kosma

Pietro Dallabernadina (Univ. Padua)

Synthese von Lipid A derivaten
Diploma thesis since 2012
Supervisor: Alla Zamyatina

Govind Kotipalli (Univ. Leipzig)

Synthese von Lipid A derivaten
Diploma thesis since 2012
Supervisor: Alla Zamyatina

Angelika Derler

Synthese von neuen Kdo Donoren
Diploma thesis 2012
Supervisor: Paul Kosma

Division of Wood, Pulp and Fibre Chemistry

Ilabahen Patel

Chemoenzymatische Modifikation von Cellulose durch das Laccase/Mediator-System
Doctoral thesis 2010
Supervisors: Thomas Rosenau, Dietmar Haltrich, Antje Potthast

Emmerich Haimer

Einsatz von überkritischem CO₂ in der Verfahrenstechnik von nachwachsenden Rohstoffen
Doctoral thesis 2010
Supervisors: Martin Wendland, Thomas Rosenau, Falk Liebner

Kyujin Ahn

Nachhaltige Wirkung der Massenentsäuerung von Bibliotheksbeständen
Doctoral thesis since 2010
Supervisor: Antje Potthast

Manuel Becker

Determinierung von Qualitätsparametern bei der Weinrebe (*Vitis vinifera* L.)

Doctoral thesis 2010

Supervisors: Astrid Forneck, Falk Liebner, Thomas Rosenau

Gerald Ebner

Surface modification of cellulosic tissue with advanced slow-release reagents

Doctoral thesis since 2008

Supervisors: Antje Potthast, Rosenau Thomas

Johannes Hell

Advanced analytical strategies for in depth characterisation of bran fractions

Doctoral thesis since 2012

Supervisors: Thomas Rosenau, Stefan Böhmendorfer

Hubert Hettegger

Medical application of polysaccharide gels

Doctoral thesis since 2012

Supervisors: Antje Potthast, Thomas Rosenau

Karl Michael Klinger

Oxidative ammonolysis of lignins in modern biorefinery scenarios

Doctoral thesis since 2009

Supervisors: Rosenau Thomas, Antje Potthast

Elisabeth Lackinger

Novel substitutes for ASA paper sizing agents based on natural vegetable oils

Doctoral thesis 2011

Supervisors: Rosenau Thomas, Antje Potthast

Nicole Pircher

Tailoring of cellulosic aerogels for biomedical applications

Doctoral thesis since 2012

Supervisors: Falk Liebner, Thomas Rosenau

Georg Pour

Synthesis and CO₂-binding of ammoxidized lignins

Doctoral thesis since 2008

Supervisors: Liebner Falk, Rosenau Thomas

Michael Schrems

Advanced separation processes in lignocellulosic biorefinery scenarios

Doctoral thesis 2011

Supervisors: Rosenau Thomas, Antje Potthast

Christian Schimper

Neuartige Cellulosephosphat-Aerogele und deren Verwendung als Biomaterialien

Doctoral thesis since 2010

Supervisors: Falk Liebner, Thomas Rosenau

Martin Siller

Oxidative Fasermodifikation

Doctoral thesis since 2011

Supervisors: Antje Potthast, Thomas Rosenau

Bojan Stefanovic

Modern lignocellulosic biorefinery scenarios

Doctoral thesis since 2008

Supervisors: Rosenau Thomas, Antje Potthast

Sharifah Nabihah Syed Jaafar

Palm empty fruit bunch fibers (EFB) as raw material for biorefineries

Doctoral thesis since 2009

Supervisors: Rosenau Thomas, Antje Potthast

Irina Sulaeva

Analytik von Alginaten und verwandten Polysacchariden

Doctoral thesis since 2012

Supervisors: Antje Potthast, Thomas Rosenau, Ute Henniges

Philipp Vejdovsky

Analytics of polysaccharide oligomers

Doctoral thesis since 2012

Supervisors: Antje Potthast, Thomas Rosenau

Huiqing Wang

Synthesis and analysis of quantum-dots in cellulosic matrices

Doctoral thesis since 2010

Supervisors: Thomas Rosenau, Falk Liebner

Philipp Korntner

Chromophores in cellulosic materials

Doctoral thesis since 2011

Supervisors: Antje Potthast, Thomas Rosenau

Nikita Aigner

Bacterial cellulose: not just a lightweight food, but also a fascinating scaffolding material preparation and characterization of unaltered and mechanically reinforced bacterial cellulose aerogels

Diploma thesis 2010

Supervisors: Falk Liebner, Thomas Rosenau

Ramona Dunareanu

Synthese und Charakterisierung von Cellulosephosphat-Aerogelen

Diploma thesis since 2010

Supervisors: Falk Liebner, Thomas Rosenau

Gerhard Humer

Isolierung organischer Säuren aus Abwässern der Zellstoffbleiche

Diploma thesis 2010

Supervisors: Antje Potthast

Sonja Friederike Bednarik

Parameteroptimierung in einem Bioraffineriekonzept

Diploma thesis since 2010

Supervisors: Antje Potthast, Thomas Rosenau

Philipp Vejdovsky

Impact of 1-ethyl-3-methyl imidazolium acetate as cellulose solvent on the activity of an endoglucanase from *Trichoderma reesei*

Diploma thesis 2012

Supervisors: Antje Potthast, Thomas Rosenau

Josua Oberlerchner

Charakterisierung von Polysacchariden

Diploma thesis 2012

Supervisors: Antje Potthast, Ute Henniges

Johanna Baron

Anthocyangehalt in Purpurweizen-Kreuzungen

Diploma thesis since 2012

Supervisors: Heinrich Grausgruber, Susanne Siebenhandl-Ehn, Stefan Böhmendorfer

Michael Wagner

Nanofibrillierung von Cellulose

Diploma thesis since 2012

Supervisors: Antje Potthast, Thomas Rosenau

Renate Kepplinger

Herstellung von Hydro- und Aerogelen aus Lignin

Diploma thesis since 2012

Supervisors: Falk Liebner, Thomas Rosenau

Liu Fang

Encapsulation of active substances via polyelectrolyte complex formation

Diploma thesis since 2012

Supervisors: Antje Potthast, Gerald Ebner, Thomas Rosenau

Bernhard Mißbichler

Biorefinery approaches with Aspen wood meal

Diploma thesis since 2012

Supervisor: Thomas Rosenau

Anna Körbel

Biorefinery approaches with Aspen wood meal

Diploma thesis 2012

Supervisor: Thomas Rosenau

Research Activities**Division of Analytical Chemistry**

The Division of Analytical Chemistry is developing novel mass spectrometric methods in the field of life and environmental sciences. The excellent research infrastructure of the division represents a unique center of elemental mass spectrometry for ultra-trace and isotope ratio analysis. Recently, the technical portfolio has been extended by molecular mass spectrometry addressing the investigation of cellular processes at the molecular level, i.e. metabolomics. The research projects of the division concern strategies for analysis of cancer therapeutics, biotechnological processes, food safety and authenticity as well as water and environmental ecogeochemistry.



Analytical Ecogeochemistry Group

The topics are segmented in three research groups which are linked via the central subject of instrumental method development. The aim is to develop and establish analytical methods in the core subjects of the division.

Group "VIRIS - Analytical Ecogeochemistry": The research group of Thomas Prohaska has a core competence in elemental and isotopic analysis using mass spectrometry and related techniques. The major research areas cover the fields of (i) authentication and quality control of food and feed (ii) animal and human migration studies (iii) environmental (bio)monitoring and (iv) forensic analysis and archaeometry.

Group "Instrumental Analytical Chemistry": The research group of Stephan Hann has a core competence in the area of separation science and mass spectrometry for analysis of biological, technological and environmental matrices covering (i) ultra trace analysis of ground- and surface waters, (ii) analysis of platinum group elements, (iii) metabolomics in the context of biotechnology and soil- and rhizosphere research, (v) ultra trace analysis of biotechnological samples and food, (vi) industrial applications.



Instrumental Analytical Chemistry Group

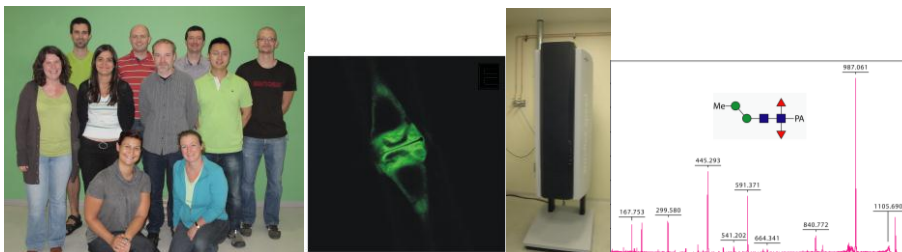
Group "Bioanalysis": The research group of Gunda Köllensperger has a major research focus in the field of elemental speciation analysis and the combined use of elemental and molecular mass spectrometry in biology and biomedicine.

Division of Biochemistry / Glycobiology

Glycobiology is the science examining the "sweet" side of proteins; the vast majority of proteins in the bloodstream and on cell surfaces are glycoproteins – which, other than amino acids, contain sugars known as glycans. The three (or already almost four) principle investigators lead rather independent groups with complementary approaches and goals.

Iain Wilson's group - the "Molecular Glycobiology" group - encompasses the use of molecular biological, cell biological, enzymological and glycomic methods to understand the types, basis and importance of glycoconjugates in a range of systems. Iain Wilson is particularly interested in the biosynthesis and developmental roles of protein glycosylation in various model organisms, especially *Drosophila*, *Dictyostelium*

and *Caenorhabditis*, as well as with various parasitic worms and protists (e.g., *Ascaris suum*, *Trichomonas vaginalis*, *Acanthamoeba*). In order to uncover the “secrets” of these not so primitive organisms, knock-out strategies are utilised in order to study the effect of gene deletions on glycan biosynthesis with a particular focus on glycomics. Seeking parallels between model and parasitic organisms, as well as the determining the unique nature of parasite glycomes constitute a major part of the work. The interactions of lectins (carbohydrate-binding proteins) with glycans are also of interest, as exemplified by a recent collaboration with ETH Zürich on worm-killing fungal lectins. Further collaborations (internally with Prof. Kosma and externally with Dr. Niels Reichardt) centre on glycan arrays. Reflecting the growth of his research area, the group moved into new premises (Muthgasse III) in 2009; the new Bruker Autoflex Speed mass spectrometer installed in 2012 is an important ‘plus’ for his group.



Molecular Glycobiology Group

Two postdocs in the group lead their own projects. Katharina Paschinger employs mass spectrometry to examine N-glycans from a variety of sources including nematode parasites and has recently been awarded a second grant to work on echinoderms such as sea urchins. Dubravko Rendić supervises, in his spare time, a ‘translational’ project on optimizing the production of glycosidases as tools for glycobiological research.

Friedrich Altmann’s group engages in the instrument-driven analysis of proteins, especially those with covalently-attached sugar chains, with the framework of many co-operations with biotechnological research groups. In this context, the electrospray mass spectrometer acquired some years ago opened up new possibilities in terms of glycan analysis. The determination of the glycosylation profile of recombinant glycoproteins produced in a range of expression systems is a major focus; emphasis is laid on the enzymatic synthesis of reference oligosaccharides, whereas the biologically-relevant effects of protein-linked sugars continue to be of interest – for instance in the realm of in vitro allergy diagnosis. Within this group, Renaud Léonard, a postdoc on his way to independence, examines aspects of the biosynthesis of plant cell walls using *Arabidopsis* as a model.

Erika Staudacher luckily finds, besides her engagement in university administration, still sufficient time for revealing the ways in which molluscs make their glycoproteins. The structures of N- and O-glycans of several snail species have been elucidated. Two snail species are grown in the lab and this ensures a continuous supply of material for glycomic and enzymatic analyses. The glycosylation abilities of molluscs are a valuable model in the field of biotechnology for the functional analysis and modification of glycans. Currently the relevant enzymes of the O-glycosylation pathway are under investigation.



Division of Biochemistry / Protein Biochemistry

One of the two main objectives of research of this group is to understand the structural basis of **metalloprotein functions**, with particular interest in iron-containing enzymes. Interesting novel oxidoreductases from various organisms are identified by phylogenetic analysis, the corresponding genes are identified and cloned, and the proteins heterologously overexpressed in *Escherichia coli*, *Pichia pastoris*, Chinese hamster ovary or HEK-cell lines. Exchange of amino acids by either site-directed or random mutagenesis in combination with biophysical methods [electron paramagnetic resonance (EPR) spectroscopy, resonance Raman spectroscopy, UV-Vis- and fluorescence spectroscopy, circular dichroism spectroscopy, differential scanning calorimetry], transient- and steady-state kinetic investigations (multi-mixing stopped-flow spectroscopy), and X-ray crystallography allow elucidation of detailed structure-function relationships. The research focuses on the kinetics and thermodynamics of electron transfer between substrate molecules and the metal center, the detailed characterization of the relevant redox intermediates of these metalloproteins, and the role of the protein matrix in the modulation of these processes. The roles of novel post-translational modifications of the prosthetic group and the protein matrix in redox catalysis of oxidoreductases are investigated.



Protein Biochemistry Group

The second main objective of research focuses on the design of new generations of (bispecific) antibodies based on the crystallizable fragment (Fc) of an immunoglobulin (IgG) molecule. We aim to design stable antigen-binding Fc-molecules ("Fcab") by engineering both the protein scaffold and the non-CDR loops of constant domains (CH2 & CH3). Within the **Christian Doppler Laboratory (CDL) for Antibody Engineering** (2009-2016) the basic research for the improvement and extension of the "Modular Antibody Technology" is performed. The group coordinates this CDL which has three modules working in the Department of Chemistry and Biotechnology (Florian R ker). Industrial partners are F-star and Merck KGaA.

Furthermore, the group is funded by several FWF-projects and coordinates the FWF Doctoral Program-plus Biomolecular Technology of Proteins – BioToP (2010-2022).

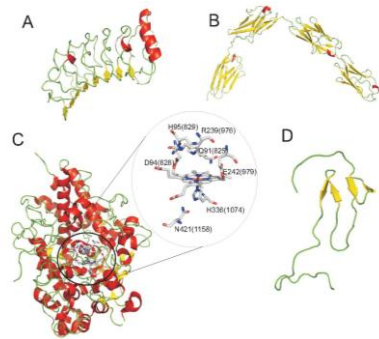
Ongoing projects:

(I) **Structure function relationships of bifunctional catalase-peroxidases and hybrid-type peroxidases.** X-ray crystallography, mass spectrometry and high-field electron paramagnetic resonance spectroscopy revealed a new peculiar post-translational modification in the active site of catalase-peroxidases (KatG). Its contribution to the electronic structure of the redox intermediates as well as to one- and two-electron oxidation reactions are

currently investigated. In addition we search for the actual binding site(s) of (unknown) endogenous peroxidase substrate(s) of KatG. In addition we elucidate structure-function relationships of novel hybrid-type peroxidases that might represent an evolutionary link between Class 1 and Class 2 peroxidases.

(II) **Structure-function relationships of human peroxidases and homologous bacterial counterparts.** We investigate the role of human myeloperoxidase and eosinophil peroxidase in innate immunity and inflammation. Based on the proposed reaction mechanism we aim at designing novel potent inhibitors by high-throughput screening combined with rational design and X-ray crystallography. Furthermore, we are interested in the role of homologous enzymes in prokaryotes. Recently, we succeeded in the recombinant production of a cyanobacterial counterpart that allows for the first time to study the biosynthesis of the heme to protein linkages that are typical for representatives of this peroxidase superfamily.

(III) **Biochemistry of peroxidasins.** Peroxidasins are glycosylated secreted heme peroxidases having in addition leucine-rich repeat domains, C-like immunoglobulin domains as well as a von Willebrand factor C module. Very recently it was demonstrated that human peroxidasin 1 forms sulfilimine bonds in collagen IV by releasing hypohalous acids thus catalysing a reaction that is important in tissue development and human disease. However, despite the upcoming biological importance of this protein family the biochemical knowledge is very poor. Our group aims at elucidation of structure-function relationships of four peroxidasins at different evolutionary levels including human peroxidasins 1 & 2 as well as homologous enzymes from *Caenorhabditis elegans* and *Drosophila melanogaster*.



Structural elements of peroxidasin

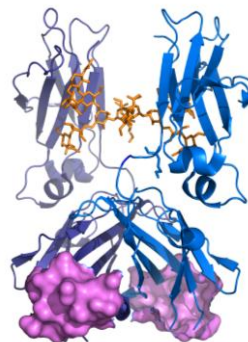
(IV) Some microorganisms can reduce perchlorate to chlorate and chlorate to chlorite via perchlorate reductase. The key enzyme in these (per)chlorate-reducing bacteria is the heme *b* oxidoreductase **chlorite dismutase** (Cld) that finally detoxifies chlorite by its conversion into chloride and dioxygen. Based on our successful recombinant production and elucidation of the X-ray structures of Clds from *Nitrospira defluvii* and *Nitrobacter winogradskyi*, we aim at to investigate two other Clds from *Bradyrhizobium japonicum* and from the cyanobacterium *Cyanothece sp.* PCC7425. Together with site-directed mutagenesis and biochemical/physical analyses we want to elucidate the general reaction mechanism of chlorite degradation that might include chlorite-mediated formation of a ferryl-porphyril radical intermediate that recombines with transiently produced hypochlorite forming a novel O-O-bond and chloride.



Chlorite dismutase from *Nitrospira defluvii*

(V) Within the Christian Doppler Laboratory for Antibody Engineering the constant domain of human IgG1 is engineered by an integrated set of

approaches (rational mutagenesis, random mutagenesis, directed evolution, yeast surface display, cell sorting, mass sequencing, recombinant expression of selected variants in *Pichia pastoris*, structural and functional analyses) to improve its stability and folding as well as elucidate those positions in structural loops that allow randomization without affecting the conformational and thermal stability of the protein. We have developed methods for (i) elucidation of the stability landscape of a protein at single residue resolution, (ii) for the thermal stabilization of proteins that can be displayed on the surface of yeast, (iii) the design of Fcabs that interact with antigens in a pH-dependent manner, (iv) for improved loop-specific random mutagenesis PCR and (v) for the evaluation of the commutability and insertion of residues in C-terminal loops of the CH3 domains of IgG1-Fc. Ongoing projects concern the design of novel heterodimeric Fc-proteins as well as of bispecific Fcabs. Furthermore, an Fc-protein that binds to a clinically relevant antigen is designed.



Fc domain from IgG1

Division of Organic Chemistry / Glycochemistry

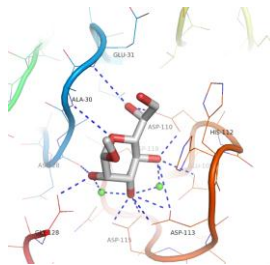
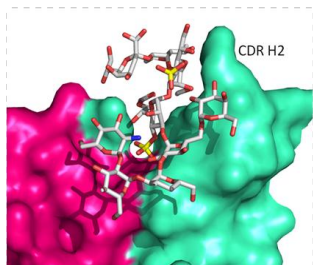


Glycochemistry Group

The main research topic of the group is based on natural product chemistry focused on the role of carbohydrates in eliciting or modulating the adaptive as well as innate immune responses.

Research interests are related to the immunochemistry and structural biology of complex carbohydrates from bacteria, viruses, parasites and plants. Key expertise has been developed in the chemical synthesis of oligosaccharides, glycopospholipids, nucleotide-activated sugars and neoglycoconjugates. The chemically synthesized ligands and neoglycoconjugates are being used in the clinical diagnosis of chlamydial and parasitic (*Toxocara canis*) infections. Furthermore, the compounds are employed for a detailed analysis of carbohydrate-antibody interactions at collaborating institutes using serology, molecular modelling, X-ray crystallography and

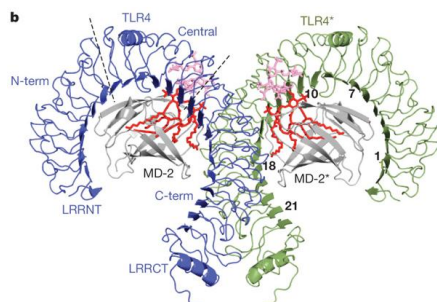
surface plasmon resonance spectroscopy. Thus, the small number of known crystal structures of antibody-carbohydrate complexes has now been considerably expanded (33 crystal structures) with a set of Kdo-specific monoclonal antibodies, synthetic oligosaccharide and Kdo analogues providing a detailed understanding on how the adaptive immune system reacts to common bacterial sugars.



Crystal structure of an *E. coli* derived LPS dodecasaccharide complexed to the neutralizing mAb WN1 222-5 (courtesy S. Evans) and methyl heptoside bound to the bacterial lectin Bc2L-A from *Burkholderia cenocepacia*

- The chemical synthesis of Inner core and Lipid A structures of bacterial lipopolysaccharides and their conversion into artificial antigens has been accomplished to investigate antigenic properties of the core region as well as the immunobiology of synthetic Lipid A ligands from *Chlamydia*, *Francisella*, *Burkholderia* and *Pseudomonas* species.
- Synthetic endotoxin mimetics have been designed as potential future therapeutics against Gram-negative sepsis based on specific interactions within the TLR4-MD-2 complex

b



Crystal structure of *E. coli* LPS complexed to human TLR4-MD-2 dimer (Park, B. S., et al, *Nature*, 2009, 458: 1191.)

- Evaluation of the binding modes of Kdo and heptose phosphate antigens within the binding sites of germline derived antibodies (cooperation with H. Brade, S. Evans)
- Synthesis of inhibitors of the heptose biosynthetic pathways as novel antimicrobials
- Lectin recognition involving heptosyl units of bacterial LPS by human lung surfactant protein and *Burkholderia* antigens
- Lectin interactions of bacterial LPS core ligands with Mannose binding proteins
- Modulation of the immune response by cell-surface sugars from parasites. Synthetic neoglycoconjugates to be used in the clinical diagnosis of parasitic *Toxocara canis* infections
- Synthesis of heterocyclic compounds as β -integrin antagonists (anticancer agents)
- Synthesis of phytosiderophores

Competence in NMR-spectroscopy is an indispensable tool for structural assignments and structure elucidation for native glycans and biosynthetic intermediates. A number of structures of S-Layer glycoprotein glycans and secondary cell wall polymers isolated at the Centre of Nanobiotechnology could be elucidated by NMR techniques. In addition, biosynthetic pathways for the generation of nucleotide-activated sugars such as GDP-Fucose, dTDP-Rhamnose, dTDP-D-FucNAc, dTDP-QuiNAc, and UDP-sulfoquinovose respectively, were characterized by NMR analysis of the intermediates. A 600 MHz NMR instrument has been installed in 2010.

Division of Wood, Pulp and Fibre Chemistry

The chair for "Wood Pulp and Fiber chemistry" at the Department of Chemistry is concerned with the chemistry of renewable resources ("Chemistry NAWAROS"). The research focuses on the following topics:

- Cellulose chemistry (structural chemistry, dissolution of cellulose and cellulose solvents, cellulosic fibers, bleaching chemistry) and polysaccharide chemistry
- Biopolymer analytics with an emphasis on cellulose and polysaccharide analytics (molecular weight distributions, profiles of functional groups, substituent distributions, oxidative modifications, chromophore analytics)
- Chemistry and development of phenolic antioxidants (structure-property relationships, novel tocopherol derivatives, multifunctional stabilizers, phenolic extractives)
- Chemistry of biomaterials on basis of renewable resources (cellulosic aerogels, "intelligent fibers", "intelligent textiles", conductive / photoelectric cellulose derivatives, phenolic resin substitutes)
- Chemistry of conservation and restoration of historic and valuable cellulosic objects (aging chemistry and conservation chemistry)
- Lignocellulosic biorefinery scenarios (exploitation of renewable resources)
- Lignin, natural and artificial humic substances (N-lignins), lignite, hydrogels
- "Green Chemistry" (sustainable and environmentally compatible chemical reactions, solvent less, energy-saving and atom-economical reactions, microwave-supported syntheses, new reaction media)



Wood, Pulp and Fibre Chemistry Group

The methods employed encompass the entire spectrum of organic synthesis with accompanying analytics (cellulosic and phenolic model compounds, cellulose derivatives, isotopic labeling, heterocyclic chemistry), structural aspects (solid-state, gel and solution NMR, EPR, crystal structure analysis) as well as specialized analytical techniques (gel permeation chromatography with multiple detection, hyphenated capillary electrophoresis).

While many scientific activities cover fundamental aspects, also a broad spectrum of applied research is covered, especially in the framework of the Christian-Doppler-Laboratory "Advanced cellulose chemistry and analytics" with its industrial partners.

State-of-the-art laboratories and equipment are placed at the disposal of a very active work group with members from all over the world, engaged in many national and international collaborations. Additionally, we host numerous visiting scientists from Europe and worldwide.

As services, several aspects concerning the chemistry, processing and application and advanced analytics of renewable resources and antioxidant chemistry are offered.

Scientific Projects

Division of Analytical Chemistry

Assessing the potential of isotopes and elements in different hard parts of freshwater fish species to determine origin and migratory patterns using laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS)

Project leader: Prohaska Thomas, Zitek Andreas

Financing: FWF, Austrian Science Fund

Duration: 01.10.2009-31.03.2013

Bergwerk Hallstatt: ISOwood-Herkunft von prähistorischem Holz

Project leader: Prohaska Thomas

Financing: FWF, Austrian Science Fund

Duration: 01.08.2011-31.07.2013

Pursuing Green Coffee Geographic Origin Discrimination Through Relations Between Isotopes and Environmental Factors

Project leader: Prohaska Thomas

Financing: FCT (Foundation for Science and Technology) Portugal PTDC/AGR-AAM/104357/2008

Duration: 01.01.2010-31.12.2012

BOKU-Network for Analysis of Pollutants and Natural Materials - follow-up projects (Department of Chemistry/Division of Analytical Chemistry)

Project leader: Köllensperger Gunda, Hann Stephan

Financing: third party

Duration: 01.07.2006-30.06.2016

Characterization of yeast cell wall

Project leader: Köllensperger Gunda
Financing: Biomin
Duration: 01.01.2010-31.3.2013

The rhizosphere biogeochemistry of phytosiderophores and plant iron uptake

Project leader: Puschenreiter Markus, Stephan Hann (sub project leader)
Financing: FWF, Austrian Science Fund
Duration: 01.09.2010-31.08.2012

Elemental labeling of peptides

Project leader: Hann Stephan
Financing: FWF, Austrian Science Fund
Duration: 01.10.2009-30.06.2013

Speciation analysis in preclinical drug development

Project leader: Köllensperger Gunda
Financing: FWF, Austrian Science Fund
Duration: 01.01.2008-30.09.2012

Food authenticity studies via stable isotopic and multielemental analyses using inductively coupled plasma mass spectrometry (ICP-MS)

Project leader: Prohaska Thomas
Financing: BOKU Doc grant
Duration: 01.03.2009-28.02.2012

Ultratrace analysis by inductively coupled plasma mass spectrometry (ICP-MS)

Project leader: Stingeder Gerhard Josef
Financing: third party funding
Duration: 01.01.1995-01.01.2015

Determination of background concentrations of priority elements (Water Framework Directive 2000/60/EG) of selected Austrian rivers via ICP-SFMS

Project leader: Köllensperger Gunda, Hann Stephan
Financing: BMLFUW
Duration: 16.01.2009-30.06.2010

Mobilisation and uptake of anthropogenic Pt, Pd and Rh emissions in the environment

Project leader: Wenzel Walter, Hann Stephan
Financing: FWF, Austrian Science Fund
Duration: 01.10.2008-30.09.2011

Vienna Isotope Research and Survey

Project leader: Prohaska Thomas
Financing: FWF, Austrian Science Fund
Duration: 01.03.2005-31.02.2011

Provenancing of Alpenlachs from aquaculture in Austria

Project leader: Zitek Andreas
Financing: Alpenlachs Soravia GmbH
Duration: 29.02.2012-31.08.2012

Elimination of cytostatic drugs from industrial waste water

Project leader: Hann Stephan
Financing: EBEWE Pharma
Duration: 01.02.2011-30.09.2011

degIMMAT

Project leader: Prohaska Thomas
Financing: Amt der Niederösterreichischen Landesregierung
Duration: 01.08.2012-31.07.2015

Isotope research in Ecogeochemistry

Project Leader: Prohaska Thomas
Financing: FWF, Austrian Science Fund
Duration: 01.07.2012-30.09.2015

Feeding ecology of the cormorant

Project leader: Zitek Andreas
Financing: FWF, Austrian Science Fund
Duration: 01.10.2011-30.09.2014

Predicting reversibility of soil acidification in beech (*Fagus sylvatica*) stands

Project Leader: Berger Torsten Winfried
Financing: FWF, Austrian Science Fund
Duration: 15.07.2011-14.07.2014

Core facility metabolomics in Austrian Center of Industrial Biotechnology (ACIB)

Project leader: Köllensperger Gunda, Hann Stephan
Financing: FFG, Forschungsförderungsgesellschaft
Duration: 01.10.2010-31.12.2014

Sub-section "Metabolomics" in Core facility "Cellular Analysis" at VIBT

Project leader: Hann Stephan, Köllensperger Gunda

Financing: ZIT Vienna
Duration: 01.10.2011-31.12.2015

PEN / Metabolomics in *Penicillium Chrysogenum*

Project leader: Köllensperger Gunda, Hann Stephan
Financing: Sandoz Kundl
Duration: 01.12.2012-30.11.2014

Division of Biochemistry / Glycobiology

Glycogenomics of *Dictyostelium discoideum*

Project leader: Wilson Iain B.H.
Start: 01.04.2007
Financing: FWF, Austrian Science Fund
Duration: 01.04.2007-31.03.2012

Re-engineering Glycosylation in Insect cells

Project leader: Wilson Iain B.H.
Financing: FWF, Austrian Science Fund
Duration: 01.04.2007-31.03.2010

Comparative Nematode Glycomics

Project leader: Paschinger Katharina
Financing: FWF, Austrian Science Fund
Duration: 01.09.2009-31.08.2014

Development of Carbohydrate Array Technologies to Systematically Explore the Functional role of Glycans in Healthy and Diseased States

Financing: Commission of the European Communities
Duration: 01.09.2008-31.08.2012

Fucosylation and defucosylation in *Arabidopsis thaliana*

Project Leader: Renaud Leonard
Financing: FWF, Austrian Science Fund
Duration: 01.09.2007-31.03.2011

Glycosylation of *Acanthamoeba castellanii*

Project leader: Wilson Iain B.H.
Financing: FWF, Austrian Science Fund
Duration: 01.01.2008-31.12.2011

O-glycan structures of gastropods

Project leader: Staudacher Erika
Financing: FWF, Austrian Science Fund
Duration: 01.03.2008-31.12.2011

Fucosyl- and xylosyltransferases involved in the biosynthetic pathway of gastropod glycosylation

Project leader: Staudacher Erika
Financing: FWF, Austrian Science Fund
Duration: 01.04.2010-31.03.2014

Development and exploitation of non-mammalian glycan arrays

Project Leader: Wilson Iain B.H.
Financing: FWF, Austrian Science Fund
Duration: 01.07.2011-30.06.2014

Glycogenomics of the opportunistic fungal pathogen *Aspergillus fumigatus*

Project leader: Wilson Iain B.H.
Financing: FWF, Austrian Science Fund
Duration: 01.07.2010-30.06.2013

Structural analysis of glycan-optimized biopharmaceuticals in plants

Project leader: Altmann Friedrich
Financing: FWF, Austrian Science Fund
Duration: 01.02.2010-31.01.2014

Glycosylation of *Caenorhabditis elegans* III

Project leader: Wilson Iain B.H.
Financing: FWF, Austrian Science Fund
Duration: 01.01.2012-30.12.2014

Recombinant glycosidases as tools in research

Project leader: Dubravko Rendic
Financing: FWF, Austrian Science Fund
Duration: 01.06.2011-31.05.2014

E. histolytica: thioredoxin system as metronidazole target

Project leader: Duchene Michael
Financing: FWF, Austrian Science Fund
Duration: 01.03.2010-28.02.2013

Posttranslational modifications of brain proteins

Project leader: Altmann Friedrich

Financing: FWF, Austrian Science Fund
Duration: 01.03.2010-28.02.2013

Training Network for the Development of Bacterial ExoPolysaccharides for the treatment of Inflammatory Conditions

Project leader: Altmann Friedrich
Financing: Commission of the European Communities
Duration: 01.02.2012-31.01.2015

Division of Biochemistry / Protein Biochemistry

Recombinant human lactoperoxidase and eosinophil peroxidase

Project leader: Furtmüller Paul
Financing: FWF, Austrian Science Fund
Duration: 01.03.2008-28.02.2011

Catalase-peroxidase from phytopathogenic fungi

Project Leader: Zamocky Marcel
Financing: FWF, Austrian Science Fund
Duration: 17.09.2008-31.08.2011

Doktoratskolleg plus "Biomolecular Technology of Proteins"

Project Leader: Obinger Christian
Financing: FWF, Austrian Science Fund, BOKU Vienna
Duration: 01.04.2010-31.03.2014

Christian Doppler Laboratory for Antibody Engineering - Modul 1

Project leader: Obinger Christian
Financing: Christian Doppler Forschungsgesellschaft (CDG)
Duration: 01.03.2009-28.02.2015

Christian Doppler Laboratory for Antibody Engineering - Modul 2

Project leader: Obinger Christian
Financing: Christian Doppler Forschungsgesellschaft (CDG)
Duration: 01.03.2009-28.02.2015

Christian Doppler Laboratory for Antibody Engineering - Modul 3

Project leader: Obinger Christian, Rümer Florian
Financing: Christian Doppler Forschungsgesellschaft (CDG)
Duration: 01.06.2011-31.05.2014

Atypical heme peroxidase family

Project leader: Zamocky Marcel
Financing: FWF, Austrian Science Fund
Duration: 01.08.2011-31.07.2013

Comparative studies on chlorite dismutases

Project leader: Furtmüller Paul
Financing: FWF, Austrian Science Fund
Duration: 01.11.2012-31.10.2015

Protein purification and structure analysis

Project leader: Furtmüller Paul
Financing: Planta Natural Products
Duration: 01.02.2006-31.01.2020

Development of new peroxygenases for industrial applications

Project leader: Obinger Christian
Financing: FFG and Eucodis Biosciences
Duration: 01.11.2012-31.10.2014

Molecular mechanism and targets

Project leader: Obinger Christian
Financing: COST Action BM1203, Reactive oxygen species
Duration: 01.12.2012-31.10.2017

Division of Organic Chemistry / Glycochemistry**Synthesis and immunochemistry of lipopolysaccharide epitopes containing 4-Amino-4-deoxy-L-arabinose**

Project leader: Kosma Paul
Financing: FWF, Austrian Science Fund
Duration: 01.03.2007-31.08.2010

Competence Centre of Wood composites and Wood chemistry

Project leader: Kosma Paul
Financing: FFG, Forschungsförderungsgesellschaft
Duration: 01.01.2008-31.12.2011

COST BM1003 Microbial cell surface determinants of virulence as targets for new therapeutics in cystic fibrosis

Project leader: Kosma Paul
Financing: Commission of the European Communities
Duration: 25.05.2010-24.05.2014

Aminosugar modified Lipid A and analogues

Project leader: Zamyatina Alla
Financing: FWF, Austrian Science Fund
Duration: 01.01.2009-31.12.2013

Synthetic endotoxin mimetics for modulation of TLR4-MD-2 – mediated immune response

Project Leader: Zamyatina Alla
Financing: FWF, Austrian Science Fund
Duration: 01.03.2010-15.08.2013

The rhizosphere biogeochemistry of phytosiderophores and plant iron uptake

Project leader: Puschenreiter Markus (subproject: C. Stanetty)
Financing: FWF, Austrian Science Fund
Duration: 01.09.2010-31.08.2012

Heptose phosphate ligands

Project leader: Kosma Paul
Financing: FWF, Austrian Science Fund
Duration: 01.11.2010-31.10.2013

Development of new inhibitors of Heptose biosynthesis (HEP)

Project leader: Kosma Paul
Financing: Mutabilis (Paris)
Duration: 01.06.2011 – 31.5.2013

Synthesis of Acinetobacter LPS ligands of collectins

Project leader: Kosma Paul
Financing: FWF, Austrian Science Fund
Duration: 15.09.2012-14.09.2015

Division of Wood, Pulp and Fibre Chemistry

Christian-Doppler Laboratory "Advanced cellulose chemistry and analytics"

Project leader: Potthast Antje, Thomas Rosenau
Financing: Christian Doppler Forschungsgesellschaft (CDG)
Duration: 01.09.2008-31.08.2015

CO₂-binding of ammonoxidized lignins and their use as soil

Project leader: Liebner Falk
Financing: FWF, Austrian Science Fund
Duration: 01.05.2008-30.04.2011

Copper corrosion at illuminated manuscripts - evaluation of means of prevention and active conservation techniques

Project leader: Potthast Antje
Financing: Bundesministerium für Bildung, Vienna, Austria
Duration: 01.09.2009-31.08.2012

Sustainability of mass deacidification

Project leader: Potthast Antje
Financing: Kulturstiftung des Bundes, Germany
Duration: 01.10.2008-30.09.2010

Schinkel's Legacy - from depot to discussion

Project Leader: Potthast Antje
Financing: Federal Ministry of Education and Research, Germany
Duration: 01.12.2010-31.12.2011

Analysis and valorization of oil palm processing residues

Project Leader: Rosenau Thomas
Financing: Malaysian Research Fund, Malaysia
Duration: 01.09.2009-31.08.2012

Analytics of lignocellulose effluents

Project Leader: Potthast Antje, Rosenau Thomas
Financing: BASF Ludwigshafen, 67056 BASF SE, GCN/R - M311, 6
Duration: 01.12.2012-30.11.2015

Chromophores and aging

Project Leader: Rosenau Thomas
Financing: FFG, Forschungsförderungsgesellschaft
Duration: 01.01.2011-31.12.2014

ENLIGMA: N-modified Lignins as a source for functional Materials

Project Leader: Liebner Falk
Financing: FFG, Forschungsförderungsgesellschaft
Duration: 01.05.2012-30.04.2014

European Polysaccharide Network of Excellence - Coordination and Support Action

Project Leader: Rosenau Thomas, Kosma Paul
Financing: Commission of the European Communities
Duration: 01.05.2012-30.04.2015

Advanced materials based on cellulosic aerogels

Project Leader: Liebner Falk
Financing: Beijing Institute of Technology (BIT), China Chinese Academy of Sciences, China
Duration: 01.09.2011-31.08.2013

Extractives in native Ugandan herbal plants and wood

Project Leader: Böhmdorfer Stefan
Financing: Appeal / ÖAD
Duration: 01.09.2011-31.08.2013

Oxidative modification of celluloses by irradiation impact

Project Leader: Henniges Ute
Financing: FORMAS Sweden
Duration: 01.01.2011-31.12.2013

Ozonization and lignin processing in ionic liquids

Project Leader: Rosenau Thomas
Financing: University of Leuven, Belgium
Duration: 01.07.2010-30.06.2013

Size-exclusion chromatography of polysaccharides

Project Leader: Potthast Antje
Financing: Erasmus Mundus
Duration: 01.09.2011-31.08.2013

For more details about Scientific Projects look at [research information service](#)

Cooperation Partners

Division of Analytical Chemistry

W. Berger, Medical University of Vienna, Metallodrugs

T.W. Berger, Institut für Waldökologie, Prediction of the regeneration of soil contaminated with acidic rain of *Fagus sylvatica* wood

S. Boulyga/ Schmitzer, IAEA, Hot particle analysis

N. Borth, Department of Biotechnology, BOKU Vienna, Biomolecule quantification, metabolomics

K. Deutsch, Federal Ministry of Agriculture, Forestry, Environment and Water Management, Ultratrace analysis of ground and surface water

H. Effenberger, BMLFUW, Abteilung VIIA, ICP-SFMS water analysis

EC-JRC IRMM, Development of a certified reference material for U and Pu age dating

P. Heffeter, Medical University of Vienna, Metallodrugs

T. Hardimann, Sandoz Kundl, Development of the analysis to the ^{13}C -analysis and quantification of metabolites in *Penicillium chrysogenum*.

IAEA, Development of LA-MCISPMS for single particle analysis

A. Jaksch, Bundesamt für Wasserwirtschaft, Institut für Gewässerökologie, Assessing the potential of isotopes and elements in freshwater fish species to determine origin and migratory patterns using LA-ICP-MS

B. Keppler, University of Vienna, Metallodrugs

S. Krämer/ M. Puschenreiter, Institute of Soil Science, Rhizosphere research

U. Klötzli, Institut für Geologie, Universität Wien, Vienna isotope research and survey

R. Krachler, Institut für Anorganische Chemie, Universität Wien, Ionic liquids as extractant for heavy metals

A. Limbeck, Technical University Vienna, Platinum group elements

National Research Council of Canada, Development for a fish reference material for Sr isotopic composition

Medizinische Universität Wien, Determination of trace elements in human tissues forensic sciences

D. Mattanovich, Department of Biotechnology, BOKU Vienna, Biomolecule quantification, metabolomics

C. Máguas, Universidade de Lisboa, Food authentication

P. Petzelbauer, Medical University of Vienna, Elemental labeling of peptides

M. Puschenreiter, Institut für Bodenforschung, Metal-mobilisation through Microbacteriaceae

PerkinElmer, ICP-MS with universal cell technology

A. Sessitsch, AIT, Metal-mobilisation through Microbacteriaceae

G. Schatzmayer, Biomin, Characterization of *Pichia pastoris* cell walls.

M. Sauer, FH Campus Vienna, METORGANIC – Metabolic Engineering of industrial microorganisms

M. Teschler, Naturhistorisches Museum Wien, Vienna isotope research and survey

University of Singapore, Tracing of food via elemental and isotopic fingerprints

W. Wenzel, Institut für Bodenforschung, Mobilization and uptake of anthropogenic Pt, Pd and Rh

Division of Biochemistry / Glycobiology

M. Aebi, ETH Zürich, Development of carbohydrate array technologies

T. Braulke, University Medical Centre Hamburg, Glycogenomics of *Dictyostelium discoideum/Acanthamoeba*

J. Cheng, Chinese Academy of Sciences, Glycosylation of the *Aspergillus fumigatus*

J. Chunsheng, Göteborgs Universitet, Glycosylation of *Ascaris suum*

R. Dinglasan, Johns Hopkins University, Glycosylation of the mosquito *Anopheles gambiae*

E. van Damme, University of Ghent, Beetle glycans

M. Ferguson, University of Dundee, Glycosylation of *Acanthamoeba*

K. Furukawa, Laboratory of Glycobiology, Nagaoka University of Technology, Japan, Glycosylation of planaria

S. Flitsch, University of Manchester, Development of Carbohydrate Array Technologies

R. Geyer, Universität Giessen, Gas chromatography and mass spectrometry of snail glycans

A. Joachim, Veterinärmedizinische Universität Wien, Comparative nematode glycomics

J. Mucha, Slovak Academy of Sciences, Recombinant enzymes

E. Razzazi-Fazeli, VetMed Univ. Vienna, MALDI-TOF MS

N. Reichardt, CICBiomagune, Development of carbohydrate array technologies

D. Vocadlo, Simon Fraser University, Structure-function of hexosaminidases

- G. Vasta, University of Maryland, Glycosylation of the eastern oyster
M. Wuhrer, Leiden University, Glycogenomics of *Dictyostelium discoideum*
J. Walochnik & D. Leitsch, Medizinische Universität Wien, Glycosylation of protozoa

Division of Biochemistry / Protein Biochemistry

- J. Arnhold, Inst. of Medical Physics and Biophysics, Leipzig, Redox potentials of short living intermediates
P. Van Antwerpen, Laboratoire de Chimie Pharmaceutique Organique, Institut de Pharmacie, Université Libre de Bruxelles, Brussels, Structure-based design, synthesis and pharmacological evaluation of MPO inhibitors
G. Battistuzzi, Dept. of Chemistry, Modena, Electrochemistry
H. Daims, Department of Microbial Ecology, Vienna Ecology Centre, University of Vienna, Chlorite dismutases
K. Djinovic, Department of Structural and Computational Biology, Max F. Perutz Laboratories, Univ. of Vienna, Chlorite dismutases from nitrate oxidizing bacteria
I. Fita, Inst. de Biologia Molecular de Barcelona, X-ray crystallography
A.J. Kettle, Department of Pathology Christchurch School of Medicine, Christchurch, Human peroxidases
A. Kubin, Planta Natural Products GmbH, Vienna, Inhibition of human peroxidases
E. Malle, Center of Molecular Medicine, Graz, HDL modification
J. Modregger, Eucodis GmbH, Vienna, Development of new peroxygenases for industrial applications
F. Rölker, Dept. of Biotechnology, BOKU Vienna, Antibody engineering
G. Smulevich, Dept. of Chemistry, Florence, Resonance Raman spectroscopy
P. Jones, F-Star, Cambridge, UK, Antibody engineering

Division of Organic Chemistry / Glycochemistry

- E. Crouch, Washington University School of Medicine, St. Louis, SP-D interaction with LPS
Baxter, NMR service
J.R. Baxter, Round Lake and Neil Ravenscroft Univ. Capetown, NMR of Polysialic acid
Department of Nanobiotechnology, NMR, Lipid models
S. Evans, Univ. Victoria, BC, X-ray crystallography of antibody complexes
J. Head, University of Boston, Crystallography of lectins
A. Imberty, CERMAV, *Burkholderia* lectins
Institute of Soil Research, Synthesis of phytosiderophores
R. Jerala, National Institute of Chemistry, Ljubljana, TLR4-MD2 binding studies
J. Jimenez-Barbero, CIB CSIC, Madrid, NMR of Lipid A analogues
W. Kaca, Jan Kochanowski University, Kielce, Poland, Serology of *Proteus* neoantigens
S. Knapp, Med. Univ. Wien, CEMM, Immunobiology of Lipid A
P. Kovarik, Max F. Perutz Laboratories, University of Vienna, Testing of lipid A with mouse macrophages
S. Knapp, CeMM Center for Molecular Medicine Austrian Academy of Sciences, Medical University of Vienna, Testing of Lipid A with whole blood tests
A. Molinaro, University of Naples, STD NMR

S. Martin-Santamaria, Universidad CEU San Pablo, Faculty of Pharmacy, Spain, Modeling of Lipid A analogues
S. Müller-Loennies, FZ Borstel, SPR and immunology of LPS antibodies
R. MacKenzie, NRC Ottawa, SPR of antibody-ligand interaction
K. Mereiter, Univ. of Technology, Vienna, X-ray crystallography
I. Schabussova, Medical Univ. of Vienna, Parasite immunology
E. Selzer, Medical Univ. of Vienna, Integrin antagonists
H. Sixta, Lenzing AG, Utilization of xylan
Savira Vienna, Triterpene saponins
J. Stöckl, Institute of Immunology, Medical Univ. of Vienna, Testing of Lipid A with primary human cells: DC's
J.A. Schmid, Institute for Vascular Biology and Thrombosis Research, Medical Univ. of Vienna, Testing of Lipid A with primary human cells: HUVEC's
C. Oostenbrink, Institute of molecular modeling and simulation
M. Valvano, Univ. Western Ontario, Heptose biosynthesis

Division of Wood, Pulp and Fibre Chemistry

G. Banik, Akademie der Bildenden Künste, Stuttgart, Mass deacidification, conservation science, damage assessment of historic cellulosic objects
W. Bauer, TU Graz, Österreich, Characterization of fiber materials
T. Bechtold, Universität Innsbruck, Institut für Textilchemie und Textilphysik, Austria, Chemical modification of cellulosic fibers, chemistry of crosslinking agents
L. Bjerregaard, M.A., Ethnological Museum, Berlin Dahlem, Germany, Determination of the state of preservation of Inka textiles and method developments and textile sample analysis
A. Blüher, Swiss National Library, Bern, Switzerland, Evaluation of mass deacidification
E. Brendler, TU Bergakademie, Freiberg, Germany, Ammoxidized technical lignins and lignite
I. Brückle, Stuttgart State Academy of Art and Design, Loan traffic of cultural objects, aging of paper
R. Buchner, University of Regensburg, Germany, Dielectric relaxation spectroscopy, cellulose solvents, thermodynamics of solutions
K. Christanis, University of Patras, Greece, Coal-based artificial humus materials
T. Dietz, Degussa-Evonik, Germany, Bleaching chemistry, chromophores in cellulosics
A.-L. Dupont, Centre de Recherches sur la Conservation des Documents Graphiques, Paris, Tideline phenomena in paper
T. Erata, & Y. Uraki, Hokkaido University, Japan, Solid state NMR spectroscopy, special CPMAS NMR techniques and chemistry of Biomaterials
D. Evtuguin, University of Aveiro, Portugal, Bleaching chemistry, chromophores in cellulosics
H.-P. Fink, Fraunhofer Institut für Angewandte Polymerforschung, Potsdam-Golm, Germany, Cellulose structure / Molecular weight distributions of cellulose and starch
A. French, USDA Agricultural research Service, New Orleans, USA, Solid state structure of cellulose
L. Gille, University of Veterinary Medicine, Vienna, EPR spectroscopy, antioxidant testing
H. Gerritsmann, Veterinärmedizinische Universität Wien, Reduction of respiratory suppression during morphine induced anesthesia in wild animals

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Schrems, M.; Ebner, G.; Liebner, F.; Becker, E.; Potthast, A.; Rosenau, T.: Side reactions in the system cellulose / 1-alkyl-3-methyl-imidazolium ionic liquid. In: T. Liebert, T. Heinze, K. Edgar (Eds.), Cellulose Solvents: For Analysis, Shaping and Chemical Modification. 149-164; American Chemical Society, Washington, DC; ISBN 9780841200067

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Liebner, F.; Haimer, E.; Potthast, A.; Rosenau, T.: Cellulosic aerogels. In Polysaccharide Building Blocks: A Sustainable Approach to the Development of Renewable Biomaterials, Habibi, Y.; Lucia, L. A., Eds. John Wiley & Sons, Inc.: Hoboken, NJ, 2012; pp 51-103.

Russler, A.; Rosenau, T.: Electrical conductivity and polysaccharides. In Polysaccharide Building Blocks: A Sustainable Approach to the Development of Renewable Biomaterials, Habibi, Y.; Lucia, L. A., Eds. John Wiley & Sons, Inc.: Hoboken, NJ, 2012; pp 247-270.

Haimer, E.; Liebner, F.; Potthast, A.; Rosenau, T.: Micro- and nanoparticles from hemicelluloses. In Polysaccharide Building Blocks: A Sustainable Approach to the Development of Renewable Biomaterials, Habibi, Y.; Lucia, L. A., Eds. John Wiley & Sons, Inc.: Hoboken, NJ, 2012; pp 367-386.

Research reports**2010**

CDL report 2010. Advanced Cellulose Chemistry and Technology

BMLFUW, Multifunktionelle Cellulosen.

FFG, Residual chromophores in bleached pulps.

CDL 2-year evaluation report, Advanced Cellulose Chemistry and Technology

2012

Final report for Muse-Project, P 44

Final report for the project "Multifunktionelle Cellulosen", BMLFUW

Report for the project "Chromophore in Zellstoffen", FFG

Mid-term report Memori-EU-Projekt

Publications are also available at [research information service](#)

Research Activities Abroad

Anna Bogolitsyna: CRCDG Paris, France, 1 month

Gerald Ebner, Kyoto Prefectural University, Kyoto, Japan, 1 month

Ute Henniges: National Research Institute for Cultural Properties, Tokyo, Japan, 3 months

Martina Opietnik: University of Wisconsin, Madison, USA, 1 year

Georg Pour: University of Wisconsin, Madison, USA, 3 months

Michael Schrems: Imperial College London, UK, 3 months

Bojan Stefanovic: University of Belgrade, Belgrade, Serbia, 2 months

Herwig Stepan, Summer Course Glycosciences; 11th European Training Course on Carbohydrates May 17-20, 2010, Wageningen, The Netherlands

Herwig Stepan, Forschungsaufenthalt am Biochemischen Institut der Justus Liebig Universität Giessen, 25.9.-22.10.2010 Germany

Shi Yan visited the laboratories of Sabine Flitsch at the University of Manchester, February 2010 and Dr. Niels Reichardt (CICBiomagune, San Sebastian, May 2010) as part of his participation in the Euroglycoarrays Initial Training Network. He made a further visit to Shi YAN visited to CICbiomaGUNE in April 2012.

Birgit Schiller visited the laboratory of Mike Ferguson at the University of Dundee in July 2010

Stefan Hofbauer was two one-month periods (from 27th of June to 22nd of July and from 26th of September to 21st of October, 2010, respectively) at the Department of Chemistry of the University of Modena and Reggio Emilia.

Thomas Prohaska was working as research scientist at the University of Singapore from February to March 2011 in the field of isotope ratio research for food authentication.

Christoph Hasenhindl visited the Design of Biological Systems Laboratory in Fundació Privada Centre de Regulació Genòmica (CRG) in Barcelona from March 31st to April 3rd 2011

Josef Voglmeir was guest at the Institute of Microbiology, Chinese Academy of Sciences (Oct-Dec 2011)

Andreas Zitek visited the Woodshole Oceanographic Institution as research scientist for the periode of 2 months in July-August 2011

Christopher Taus, Nagaoka University of Technology, Japan, 1.7.-31.8.2012

Christoph Hasenhindl visited the Design of Biological Systems Laboratory in Fundació Privada Centre de Regulació Genòmica (CRG) in Barcelona from from February 27th to March 11th 2012

Monika Soudi visited the Laboratory of Pharmaceutical Chemistry at the Universite Libre de Bruxelles, 11. 08. 2012-31 09 2012

Manuel Becker, Short-term scientific mission (COST-STSM) at the VTT, Helsinki, Finland

Nicole Pircher was visiting scientist at the Université Blaise Pascal, Clairmont Ferrand, France, Oct. 2012

Thomas Rosenau was guest professor at the Shinshu University, Japan

Stefan Böhmdorfer visited the Biorefinery Training School, Lissabon, Portugal, April 2012

Ute Henniges, Short-term scientific mission (COST-STSM) at Wageningen University, Nederlanden, Oct./Nov. 2012

Stefan Böhmdorfer visited the Biorefinery Training School, Wageningen University and Research, Netherlands, Nov. 2012

Thomas Zweckmair, research stay at the Isover GesmbH

External Teaching Activities

Erika Staudacher, 15.-23. 2. 2011, Hanoi University of Science and Technology, Hanoi, Vietnam

Iain Wilson, Birgit Schiller and Dubravko Rendić hold a lecture series on glycobiology each year for the Fachhochschule Wien

Birgit Schiller and Martin Dragosits have supervised biochemistry practicals for the Fachhochschule Wien

University management

Erika Staudacher is Deputy Head of the senate since October 2009

Awards

Christian Stanetty was awarded the Würdigungspreis des BMWF

Christian Stanetty received his PhD distinction "sub auspiciis praesidentis rei publicae"

Iain Wilson was awarded the GlycoThera Award 2011

Katharina Paschinger was awarded an APART-Fellowship from the ÖAW

Antje Potthast was awarded the Hayashi Jisuke International Cellulose Award, Japanese Cellulose Society

Falk Liebner was awarded the Fibreplus Award, Austropapier, AG Biomaterialchemie

Thomas Rosenau received an honorary doctorate (Shinshu university).

External Lectures and Seminar Talks

Friedrich Altmann, Meduni Wien, Pirquetclub; (Ir)relevance of glycans in allergy, 21. 2. 2010

Friedrich Altmann, Glyco XXI Workshop, Glycomics, August 2010, Wien

Friedrich Altmann, Pirquet-Club im AKH Wien, Allergisch auf Zucker

Friedrich Altmann, Dionex Forum Wien, Kapillar-LC-ESI-MS von Nukleotiden und Nukleotidzuckern mit Graphitsäulen

Friedrich Altmann, Glyco XXI Vienna, To label or not to label Is that the question?

Friedrich Altmann, Seminar at Roche Penzberg, Germany, Glykoprotein-Analytik vermittelt Massenspektrometrie, 16. Mai 2012

Gerald Ebner, Prefectural University Kyoto, Japan

Falk Liebner, École National Superior de Chimie de Clairmont-Ferrand, France

Falk Liebner, TU Vienna, Bioscience Technologies Seminar, Institut für Verfahrenstechnik

Falk Liebner, National Key Institute for Bamboo Research, Hangzhou, PR China

Falk Liebner, Jiangnan University, Institute for Polymer Technology, Wuxi, PR China

Falk Liebner, Ho Chi Minh City University of Technology, Faculty of Mechanical Engineering, Vietnam

Falk Liebner, German Aerospace Center, Cologne, Germany

Stephan Hann, Guest lecturer at the University of the Balearic Islands, April 2012, Mass spectrometry based analytical chemistry

Stephan Hann, Analytical Chemistry seminar at the University of Vienna, 2010, Quantification Strategies and Measurement Uncertainty in Elemental and Molecular Mass Spectrometry

Stephan Hann, G. Köllensperger Workshop at ENPHO, Kathmandu, Nepal, 2010, HPLC in pesticide analysis

Stephan Hann, Agilent Forum Analytik, Basel, 2011, LC-MS/MS – analysis of phenols in wine for classification of grape variety, geographical origin and vintage

Stephan Hann, Environmental Geochemistry seminar at the University of Vienna, 2012, Mass spectrometry based speciation analysis in environmental sciences

Ute Henniges, TU Graz, Austria

Ute Henniges, Tobunken Tokyo, The University of Tokyo, Japan

Ute Henniges, Tokyo University of the Arts, Japan

Ute Henniges, Bleichseminar, Förderverein Papierrestaurierung, Stuttgart, 19-21. 9. 2012

Gunda Köllensperger, Chemistry Colloquium, Humboldt University, Berlin, 22.6.2011, Bioanalysis based on elemental speciation approaches

Gunda Köllensperger, Guest professor for Analytical Chemistry at the Humboldt University Berlin, 2011, (lecture series on Fundamental Analytical Chemistry, and advanced courses in elemental speciation analysis)

Paul Kosma, Mutabilis, Paris, February 24, 2011, Bacterial heptoses: Synthetic chemistry as key to elucidate biosynthesis and immune recognition of lipopolysaccharide epitopes

Paul Kosma, AMGEN Press. Academy, Vienna, Kleinste Strukturen mit großer Wirkung – über Zuckermoleküle zu besseren Biologika

Paul Kosma, BAXTER, Vienna, November 18, 2011, Biomolecular structure and antibody recognition of the enterobacterial core LPS core region

Paul Kosma, Institute of Medicinal Biotechnology, Chinese Academy of Medical Sciences, Beijing, China, May, 17, 2012, Recognition of the inner core region of bacterial lipopolysaccharides by antibodies and lectins

Paul Kosma, COST-meeting Naples, 4 June 2012, Synthesis and immune recognition of the LPS heptose phosphate core

Paul Kosma, Research Center Borstel, 21- 22 September 2012, Synthetic chemistry and the molecular basis of immune recognition of LPS: mission accomplished?

Christian Obinger, Modulation of catalytic functions in heme enzymes by posttranslational modifications of redox sites. Hans Fischer-Symposium, Technische Universität München, Garching, Germany

Martin Pabst, Glyco XXI Vienna, LC-ESI-MS with glycopeptides

Antje Pothast, University Milano-Bicocca, Faculty of Chemistry, Italy

Antje Pothast, STEP-IN, University of Innsbruck

Thomas Rosenau, Shinshu University, Japan

Thomas Rosenau, Isover GesmbH 16.09.2012

Thomas Rosenau, Panel discussion, Papier, Messe Graz, 23.05.2012

Thomas Rosenau, Panel discussion, Paper Day, Vienna, 14.06.2012

Thomas Rosenau, Falk Liebner, Round Table Discussion Austropapier, 27.09.2012

Thomas Rosenau, TU Graz, Department of Chemistry, 12.11.2012

Thomas Rosenau, Panel discussion, ÖVAF-Festveranstaltung, 29.11.2012

Michael Schrems, University College London, UK

Erika Staudacher, Glycosylation of Gastropods, Hanoi University of Science and Technology, Hanoi, Vietnam

Michael Traxlmayr, Gerhard Stadlmayr und Paul Furtmüller, Multiangle and dynamic light scattering Seminar in Dernbach, 12.-13. Juni 2012, Germany

Press Reports

Film zur Massenentsäuerung von Bibliotheksgut

Neue Generation therapeutischer Antikörper, Austria Innovativ, Oktober 2010

Antikörper an ihren Schlaufen packen, Presse, 17.10. 2010

Bittersüßer Stoffwechsel. Die Rolle des Zuckers für Krebs und Co., OE1-Dimensionen

Wegbereiter für die Medizin von morgen, APA Update: 16.11. 2011

Forensik, Documentation, Puls 4, 2012

Antikörper verhindert überschießende Immunantwort, APA-Beitrag 26.11. 2012

Ein vergessener Antikörper wirkt gegen Sepsis, Wiener Zeitung, 27.11. 2012

Hoffnung im Kampf gegen Sepsis, Tiroler Tageszeitung Kompakt 27.11. 2012

Internationaler Erfolg einer österreichischen Idee, F-Star, Cambridge, UK, Chemie 2012

Maßgeschneiderter Angriff auf böse Zellen, Standard 2012

Papier aus Österreich, Pressegespräch & Round Table (Thomas Rosenau)

Bioraffinerien, Interviews Ö1, (Thomas Rosenau)

Nachwachsende Rohstoffe, Technologiegespräche Alpbach, Reportage Ö1, (Thomas Rosenau)

Invited Speakers

Tiffany Abitbol, McGill Montreal, Canada

Michail Balakshin, Lignol, USA

Paul de Bievre, European Commission Joint Research Center

Konstantin Bogolitsyn, Russian Academy of Sciences, Archangelsk, Russia

Jin Cheng, Chinese Academy of Sciences, China

Michael Ferguson, University of Dundee, UK

Mark Field, Cambridge, UK

Al French, United States Department of Agriculture, Washington, DC, USA

Dan Gibson, The Hebrew University of Jerusalem – Faculty of Medicine – School of Pharmacy, Israel

Charlotte Giesen, Humboldtuniversität zu Berlin, Germany

Derek Gray, McGill Montreal, Canada

William Harnett, University of Glasgow, UK

Wolfgang Haberl, Hablo Film

John Kadla, University of British Columbia Vancouver, Canada

Kanji Kajiwara, KIT Kyoto, Japan

Takuya Kitaoka, Kyushu University, Fukuoka, Japan

Keiko Kida, Tokyo University of the Arts, Tokyo, Japan

Reetta Kivelä, University of Helsinki, Faculty of Agriculture and Forestry, Dept. of Food and Environmental Sciences, Helsinki, Finland

Robert Konrat, Dept. of Structural and Computational Biology, Max F. Perutz Laboratories, University of Vienna, Austria

Marie-Pierre Laborie, University of Freiburg, Germany

Carlos Martín, Universidad de Matanzas, Cuba

Anne Merilouto, Helsinki University of Technology / Aalto University, Finland

Jean Marie, Nedelec Université Blaise Pascal, Clermont-Ferrand, France

Tu Binh Minh, Hanoi University of Science, VNU, Vietnam

Gertrud Morlock, University of Stuttgart, Germany

Satoko Okubayashi, Kyoto Institute of Technology, Japan

John Ralph, Dept. Biological Systems Engineering, University of Wisconsin, Madison, USA

Katharina Pirker, Austrian Insitute of Technology, Austria

Joseph Ray, Baxter Inc., Round Lake, Illinois, USA

Yasumitsu Uraki, Wood Chemistry Dept. of Forest Science Faculty of Agriculture Hokkaido University, Japan

Irina Smirnová, TU Hamburg, Germany

Adriana Sturcova, Academy of Sciences in Prague, Institute of Macromolecular Chemistry, Czech Republic

Volland, MPA Stuttgart, Germany

Hiroyuki Yano, Kyoto University, Japan

Yuko Yoneda, Toshinari Kawada, Univ. Miyazaki, Kyoto Prefectural University, Japan

Ronny Wahlström, VTT Technical Research Centre of Finland, Espoo, Finland

Thomas Walczyk, University of Singapore, Republic of Singapore

Manfred Wuhrer, University of Leiden, The Netherlands

Sarani Zakaria, University Kebangsaan, Malaysia

Ulrich Zähringer, Research Center Borstel, Germany

Omar El Zeoud, University of Sao Paulo, Brazil

Scientific Events

Leopold März, Erika Staudacher, Iain Wilson, Organizers of the Glyco21 - XXI International Symposium on Glycoconjugates, Vienna, Austria, August 21-26, 2011



Thomas Rosenau, Co-organizer of the 11th European Workshop on Lignocellulosics and Pulp (11th EWLP), von Thünen Institute Hamburg, August 13 – 16, 2010

Thomas Rosenau, Co-organizer of the 4th International Symposium on Emerging Technologies of Pulp and Papermaking (4th ISETPP), Guangzhou, China, Nov. 2010

Antje Potthast, Ute Henniges, Organizers of the International workshop, Bleaching in Paper Conservation, BOKU, Vienna, February 2010

Thomas Rosenau, Co-Organizer of the COST Strategic Workshop Principles and Development of Bio-Inspired Materials, Co-organization BOKU, Vienna

Antje Potthast, Organizer of the Workshop COST FP0901, BOKU, Vienna, February 2010

Stephan Hann, Gunda Köllensperger, ASAC Junganalytikerforum, Vienna, AUSTRIA, June 11 - 12, 2010

Paul Kosma, Organizer of the 14th and 16th Austrian Carbohydrate Workshop BOKU, February 2010 and 2012

Christian Obinger, Member of the scientific and organizing committee of the 7th International Meeting on Human Peroxidase in Brussels, Belgium, May 2011

Thomas Prohaska co-organized and co-chaired the Joint Seminar on Isotope Research in Ecogeochemistry (IRE), Tainan, Taiwan, November 2011

Ian Wilson was co-chair, Second Joint Austria/Japan Seminar on Comparative and Developmental Glycobiology, 2011

Thomas Prohaska was convenor of the session 'Non traditional isotopes in ecogeochemistry' at the EGU, Vienna 2011, 2012.

Hann, Irrgeher, Köllensperger, Prohaska have organized the ICPMS Anwendertreffen, UFT Tulln, 2012

Thomas Prohaska organized and chaired the 2nd Joint Seminar on Isotope Research in Ecogeochemistry (IRE), UFT Tulln, September, 2012

Paul Kosma was member of the Scientific Advisory Board Eurocarb 17

Christian Obinger was member of the scientific committee of Oxizymes, Marseille, 16.-19. Sept. 2012

Antje Potthast was co-organizer of the COST FP0901 Workshop, 27-28. 3. 2012

Thomas Rosenau was co-organizer of the European Workshop on Lignocellulosics and Pulp (EWLP), Helsinki, Finland, August 2012

Thomas Rosenau was co-organizer and Scientific Advisory Board Member of the 3rd International Cellulose Conference (ICC), Sapporo, Japan, October 2012

Thomas Rosenau was co-organizer of the 4th International Conference on Pulping, Papermaking and Biotechnology (ICPPB '12), Nanjing, China, November 2012

Visiting Scientists

Laszlo Abranko, General unknown screening of food samples by LC-TOF-MS

Azamat Boymirzaev, Namagan University, Uzbekistan, GPC of cellulosics

Eylul Baran, IAESTE

Michaela Ciglanská, Bratislava, Slovakia, Iron-induced cellulose oxidation

Fangeng Chen, South China University of Technology, China, Lignin-carbohydrate complexes

Franziska Devi, University of Singapore

Charlie van Doorslaer, Catholic University of Leuven, Belgium, Lignin degradation in ionic liquids

Cedric Delporte, Université Libre de Bruxelles (ULB), Faculté de Pharmacie, Bruxelles, Reactions of humane peroxidases with LDL and Oxidized LDL

Shizuka Egusa, Kyushu University, Japan, Synthesis of cellobiose derivatives

Jörg Flemmig, Institute for Medical Physics and Biophysics, Leipzig, Hypothiocyanate induced complex formation in human myeloperoxidase

Jörg Flemmig, Institute for Medical Physics and Biophysics, Medical Faculty, University of Leipzig, Germany, Reactions of humane peroxidases with HOSCN

Merima Hasani, Chalmers University, Göteborg, Irradiation of cellulosics

Eva Hummert, Stuttgart State Academy of Art and Design, Germany, Penetration behaviour of consolidation agents in conservation

Semira Galijasevic, University of Sarajevo, Faculty of Science, Department of Chemistry, Sarajevo, Bosnia and Herzegovina, Melatonin mediates myeloperoxidase-induced low density lipoprotein peroxidation

Mirjana Kostić, University of Belgrade, Serbia, Phytic acid emulsions and influence of acetic acid on copper corrosion

Keiko Kida, Tokyo University of the Arts, Japan, Degradation of Cellulose Caused by Prussian Blue on Japanese Wood Block Prints

Reetta Kivelä, University of Helsinki, Finland, Degradation mechanisms of beta-glucans

Peter Kysel, Masaryk University Brno, Analysis of N-glycans from parasitic organisms

Sonja Kirschnerová, Bratislava, Slovakia, Aging of celluloses

Stefan Köstler, Bogaziçi University Istanbul, Hexosaminidases, Oct 2012

Mirjana Kostic, University of Belgrade, Serbia, Textile chemistry

Vera Malinina, Hamburg University of Technology, Germany, Lignin aerogels

Jovana Milanović, University of Belgrade, Serbia, Cellulose oxidation

Anne Meriluoto, Helsinki University of Technology / Aalto University, Finland, Vapour phase acid degradation of cellulose

Ouyang Hiaomao, 欧阳浩淼, Glycosylation of *Aspergillus fumigatus*

Paloma Juarez Ortega, N-glycan composition of a Human IgA produced in transgenic tomato

Lilia Perez, Hamburg University of Technology, Germany, Lignin aerogels

Frédéric Pouyet, Pagora Grenoble, France, GPC of celluloses

Linda Rafeld, Analyses of the glycosylation pattern of the pea derived CTB:VP60 protein

John Ralph, University of Wisconsin-Madison, USA, Lignin NMR, plant cell wall analysis

Masato Sakaguchi, Shizuoka University, Japan, Tribochemistry of cellulose

Malgorzata Smuga, Koszalin University of Technology, Slovakia

Denise Schlorke, Institute for Medical Physics and Biophysics, University of Leipzig, Germany, Reactions of humane peroxidases with HOSCN and chlorite

Midori Takasaki, Shinshu University, Japan, Electrospinning of cellulosic fibers

Liew Tze Khong, National University of Malaysia, Lignin binders

Midori Takasaki, Miyagi University of Education, Japan, GPC of cellulose

Du Ting, 杜婷, Glycosylation of *Aspergillus fumigatus*

Ronny Wahlström, VTT Technical Research Centre of Finland, Enzymatic degradation of cellulose

Tomasz Walski, University of Ghent, Belgium, Glycan structures of Red Flour Beetle

Thomas Walczyk, University of Singapore

Raiko Winkler, Quantification of immunoglobulins by LC-ICP-MS

Prachit Yuwang, Suranaree University of Technology, Thailand, Analytics of rice arabinoxylans

Yuko Yoneda, Kyoto Prefectural University, Japan, Synthesis of celloextrin model compounds

Sarani Zakaria, National University of Malaysia, Lignin binders

Other External Activities of the Members of the Department

Falk Liebner organized the Christmas lecture 2010 and 2012

Exhibition "HOLZ" at the UFT

„Lange Nacht der Forschung" at the UFT

Gunda Köllensperger is member of the editorial board of Journal of Analytical Atomic Spectroscopy (RSC)

Paul Kosma is member of board of the Christian Doppler Research Society

Paul Kosma is member of the board of WOOD COMET

Paul Kosma is in the editorial advisory board of Journal of Innate Immunity, Carbohydrate Research and Lenzinger Berichte

Paul Kosma is the national representative of Austria in the International Carbohydrate Organization (ICO and the European Carbohydrate Organization (ECO)

Paul Kosma was president of the the European Carbohydrate Organization (ECO) until 2011

Christian Obinger is editorial board member of the journal Archives of Biochemistry and Biophysics

Thomas Prohaska is titular member to the Commission on Isotopic Abundances and Atomic Weights (CIAAW), member of the IUPAC subcommittee on Isotopic Abundances and Atomic Weights and member of the subcommittee on Stable Isotope Reference Material Assessment of the International Union of Pure and Applied Chemistry

Thomas Prohaska is member of the certification advisory panel of the EC – JRC IRMM, Belgium, Geel

Thomas Prohaska is chairman of the Austrian Society for Chemistry and Physics Gerhard Stingeder is member of the board of the Austrian Society of Analytical Chemistry - ASAC

Thomas Rosenau is associate editor of the journal Holzforschung and member of the editorial boards of the journals Cellulose, Arkivoc, Current Organic Synthesis, The Open Macromolecules Journal, The Open Natural products Journal, Letters in Organic Synthesis, Mini-Reviews in Organic Synthesis, and Journal of Renewable Materials.

Thomas Rosenau is fellow of the International Academy of Wood Science and the Japanese Academy of Science.

Thomas Rosenau is member of the Scientific Advisory Board of the International Lipid Research Association.

Thomas Rosenau is member of the Scientific Advisory Council of Shinshu University, Japan

Antje Potthast is member of the editorial boards of the journals Restaurator, Wood Science and Technology, Cellulose, and Current Chromatography

Iain Wilson is Member of Board of Delegates in Austrian Science Fund FWF since 2011 (previously a Deputy Member), Member of the Editorial Advisory Board of the Biochemical Journal, Member of the Editorial Board of Glycoconjugate Journal, Member of the Editorial Board of Glycobiology, Member of the Steering Committee of the ESF-funded Euroglycosciences research network programme and President of the International Glycoconjugate Organisation (2011-2013)

Acknowledgements

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Impressum

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