

Su Ma

PERSONAL DETAILS:

- ✧ Year of Birth: 1986
- ✧ Birth place: Qingdao, Shandong province, P. R. China
- ✧ Marital status: Married
- ✧ Gender: Female
- ✧ Languages: Chinese (Native), English (B2), German (A2)
- ✧ Email: masu277@gmail.com (or masu277@163.com)
- ✧ Current position: Postdoctoral researcher in University of Natural Resources and Life Sciences, Vienna

EDUCATION:

- ✧ 9/2008-7/2013 Doctor of Medicine (majoring in Biochemistry and Molecular Biology)
Ocean University of China, supervised by Prof. Wengong Yu
- ✧ 9/2004-7/2008 Bachelor of Medicine (majoring in Pharmacy)
Ocean University of China

RESEARCH EXPERIENCE:

- ✧ 4/2014-4/2017 University of Natural Resources and Life Sciences, Vienna
Marie Curie ITN ER fellow, Supervised by Dr. Roland Ludwig
- ✧ 2/2017-3/2017 Dropsens, S. L., Edificio CEEL, Spain
Visiting researcher, supervised by Dr. David Hernandez Santos
- ✧ 5/2016-7/2016 Lund University, Sweden
Visiting researcher, supervised by Prof. Lo Gorton
- ✧ 1/2015-2/2015 French National Institute for Agricultural Research (INRA)
Visiting researcher, supervised by Prof. Eric Record
- ✧ 1/2014-2/2014 Catholic University of Leuven, Belgium
Research assistant, supervised by Prof. Wim Van den Ende
- ✧ 5/2012-7/2012 Shangdong University
Exchange student, supervised by Prof. Lushan Wang
- ✧ 7/2007-8/2007 Ocean University of China
Research assistant, supervised by Prof. Guangli Yu

SCIENTIFIC KEY QUALIFICATIONS:

- ✧ **Electrochemical techniques:** cyclic voltammetry; square wave voltammetry, amperometry, spectroelectrochemistry, etc.
- ✧ **Protein:** purification of proteins, such as gel filtration chromatography, ion-exchange chromatography, affinity chromatography; SDS denaturing gel electrophoresis; Western Blot, etc.
- ✧ **Enzyme characterization:** steady-state-, transient-state-, thermodynamical- and electrochemical techniques.
- ✧ **Bioinformatics analysis:** phylogenetic tree construction; multiple sequence

alignment; consensus sequence analysis (sequence logo); homology modeling; 3D structural analysis by PyMOL software, comparative (homology) modeling and docking of proteins, etc.

- ✧ **Carbohydrate:** purification of carbohydrate, such as gel filtration chromatography, ion-exchange chromatography; carbohydrate polyacrylamide gel electrophoresis; fluorophore-assisted carbohydrate electrophoresis; analysis of carbohydrates by HPLC or LC-MS, etc.
- ✧ **Microbiology techniques:** Cultivation and screening of microorganisms, recombinant overexpression and down-stream processing of proteins, optimization of fermentation processes.
- ✧ **Recombinant DNA techniques:** construction of genomic library and cDNA library; DNA isolation, purification, digestion and ligation; competent cell preparation; bacterial cell transformation; southern blot, etc.
- ✧ **PCR and PCR based techniques:** such as inverse PCR, nested PCR, degenerate PCR; site-directed mutagenesis; directed evolution; primer design; purification of PCR product for sequencing or cloning, etc.
- ✧ **Gene expression analysis:** such as RT-PCR, gene chip, real-time quantitative PCR; purification of RNA from tissues, animal cells and bacterial cells, etc.
- ✧ **Gene expression:** choice of appropriate vector; preparation of vector-insert construct; modification of expression conditions; determination of target protein solubility; batch purification under native conditions and denaturing conditions, etc.

PUBLICATION LIST:

- ✧ **Su Ma**, Marita Preims, François Piumi, Lisa Kappel, Bernhard Seiboth, Eric Record, Daniel Kracher and Roland Ludwig. Molecular and catalytic properties of fungal extracellular cellobiose dehydrogenase produced in prokaryotic and eukaryotic expression systems. *Microb Cell Fact.* 2017, 16: 37.
- ✧ **Firas A. Al-Lolage**, **Marta Meneghello**, **Su Ma**, Roland Ludwig and Philip N. Bartlett. A Flexible Method for the Stable, Covalent Immobilization of Enzymes at Electrode Surfaces. *ChemElectroChem.* 2017, 4(6): 1528-34.
- ✧ **Hussein Kanso**, María Begoña González García, Laura Fernández Llanoa, **Su Ma**, Roland Ludwig, Pablo Fanjul Bolado and David Hernández Santosa. Novel thin layer flow-cell screen-printed graphene electrode for enzymatic sensors. *Biosens Bioelectron.* 2017, 93:298-304
- ✧ **Ilabahen Patel**, Daniel Kracher, **Su Ma**, Sona Garajova, Mireille Haon, Craig B. Faulds, Jean-Guy Berrin, Roland Ludwig, Eric Record. Salt-responsive lytic polysaccharide monooxygenases from the mangrove fungus *Pestalotiopsis* sp. NCi6. *Biotechnology for Biofuels.* 2016, 9:108.
- ✧ **Piyanut Pinyou**, Adrian Ruff, Sascha Pçller, **Su Ma**, Roland Ludwig, Wolfgang Schuhmann. Design of an Os Complex-Modified Hydrogel with Optimized Redox Potential for Biosensors and Biofuel Cells. *Chemistry.* 2016, 22(15):5319-26.

- ✧ Yulong Tan, Matthias Leonhard, Doris Moser, **Su Ma**, Berit Schneider-Stickler. Inhibition of mixed fungal and bacterial biofilms on silicone by carboxymethyl chitosan. *Colloids Surf., B*, 2016, 148:193-199
- ✧ Yulong Tan, Matthias Leonhard, **Su Ma**, Berit Schneider-Stickler. Influence of culture conditions for clinically isolated non-albicans Candida biofilm formation. *J Microbiol Methods*, 2016, 130:123-128
- ✧ Yulong Tan, Matthias Leonhard, Doris Moser, **Su Ma**, Berit Schneider-Stickler. Long-term antibiofilm activity of carboxymethyl chitosan on mixed biofilm on silicone. *Laryngology*. 2016, 27.
- ✧ Yulong Tan, **Su Ma**, Chenguang Liu, Wengong Yu, Feng Han. Enhancing the stability and antibiofilm activity of DspB by immobilization on carboxymethyl chitosan nanoparticles. *Microbiological Research*. 2015, 178:35-41.
- ✧ Patricia Molina-Espeja, **Su Ma**, Diana M. Mate, Roland Ludwig, Miguel Alcalde. Tandem-yeast expression system for engineering and producing unspecific peroxygenase. *Enzyme and Microbial Technology*. 2015, 73-74:29-33.
- ✧ **Su Ma**, Gaofei Duan, Wengang Chai, Cunliang Geng, Yulong Tan, Lushan Wang, Wengong Yu, Feng Han. Purification, characterization, cloning and essential amino acid residues analysis of a new ι-carrageenase from the marine bacterium *Cellulophaga* sp. QY3. *PLoS ONE*. 2013, 8(5):e64666.
- ✧ **Su Ma**, Yulong Tan, Feng Han, Wengong Yu. Cloning, expression and characterization of a new iota-carrageenase from marine bacterium *Cellulophaga* sp. QY3. *Biotechnology Letters*. 2013, 35(10):1617-22.
- ✧ Sheng Xing, Guoli Li, Xulu Sun, **Su Ma**, Guanjun Chen, Lushan Wang, Peiji Gao. Dynamic changes in xylanases and β-1,4-endoglucanases secreted by *Aspergillus niger* An-76 in response to hydrolysates of lignocellulose polysaccharide. *Applied Biochemistry and Biotechnology*. 2013, 171(4):832-46.
- ✧ Yulong Tan, Feng Han, **Su Ma**, Wengong Yu. Carboxymethyl chitosan prevents formation of broad-spectrum biofilm. *Carbohydrate Polymers*. 2011, 84(4): 1365-1370.

RECOGNITION, AWARDS and SCHOLARSHIPS:

- ✧ 07/2017 “Direct electron transfer of cellobiose dehydrogenase anisotropically orientated on gold electrodes”
Oral presentation at 24th International Symposium on Bioelectrochemistry and Bioenergetics of the Bioelectrochemical Society
- ✧ 04/2017 “Effects of expression systems on the molecular properties of a fungal enzyme”
Poster presentation at 9th Conference on Recombinant Protein

- Production
- ◇ 07/2014 “Class III cellobiose dehydrogenase”
Poster presentation at OxiZymes2014 in Vienna
 - ◇ 10/2011 “Progress in preparation and structure analysis of carrageenan oligosaccharides.”
Oral presentation at the Qilu Graduate Student Forum
 - ◇ 10/2010 “Carrageenase: a kind of glycoside hydrolase.”
Oral presentation at the Fourth Marine Development Forum of Ocean University of China; outstanding paper award
 - ◇ 2011-2012 Outstanding student of extracurricular activities for the excellent performance in campus cultural activities
 - ◇ 2010-2012 First class Doctoral Scholarship of University (twice)

RESEARCH PROJECTS (participated):

- ◇ “OXIDASE” “How fungi degrade crystalline cellulose”
ERC Consolidator Grant, 2016 Research Project 726396
- ◇ “BIOENERGY” “Biofuel Cells: From Fundamentals to Applications in Bioelectrochemistry”
Marie Curie Initial Training Networks (ITN), number FP7-People-2013-ITN-607793.
- ◇ “INDOX” “Industrial Oxidoreductases”
European Union’s Seventh Framework Program, number FP7-KBBE-2013-7-613549.
- ◇ “The gene cloning, structure-function relationship and mechanism analysis of a novel lambda-carrageenase.”
National Natural Science Foundation of China, number 31070712.
- ◇ “The cold-adapted and thermostability mechanism of a new endoglucanase.”
National Natural Science Foundation of China, number 31000361.
- ◇ “The development of new marine enzyme products.”
National High-tech R&D Program, number 2011AA09070304.
- ◇ “The product development of seaweed polysaccharide-degrading enzymes.”
Special Fund for Marine Scientific Research in the Public Interest, number 201105027-3.
- ◇ “The development of marine functional oligosaccharides.”
Special Fund for Marine Scientific Research in the Public Interest, number 201005024.
- ◇ “The research of anti-biofilm activity of β -1,6-N-acetylglucosaminidase.”
National High-tech R&D Program, number 2007AA091506.