

CURRICULUM VITAE

IRENE LICHTSCHEIDL

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Date of Birth: 12 June 1955
Marital Status: married since 1982 to the Chemist Josef Lichtscheidl,
one son and one daughter, both born 1994
Nationality: Austrian

EDUCATION

1996: **“Venia docendi”** (Habilitation) in "Anatomy and Physiology of Plants" at the University of Vienna. Specialization in physiology of plant cells

1983 **Graduation to Dr. phil.** at the University of Vienna *sub auspiciis praesidentis rei publicae*

1978-1982: **Ph.D.** thesis at the Institute of Plant Physiology, University of Vienna (topic: The effects of UV radiation of the membrane permeability of *Allium cepa* inner epidermal cells. Supervisor: Univ. Prof. Dr. Walter G. Url)

1976–1982 **Study of Botany** at the University of Vienna

1973–1977 **Study of Pharmacy** at the University of Vienna

PROFESSIONAL EXPERIENCE

Since 2005 Core Facility for Light and Electron Microscopy, Head of the Department since 2009

2000-2004 Head of the Department of Cell Physiology and Scientific Film at the Institute of Ecology, University of Vienna

since 1996 ao Univ. Prof. at the University of Vienna

1988 - 1989 PostDoc at the University of Massachusetts at Amherst, MA, with Peter Hepler

1987 Post Doc at the Technical University of Munich, Germany, with Dieter G. Weiss

Since 1983 University Assistant at the Institute of Plant Physiology

AWARDS

Fulbright Stipendium for the PostDoc in Amherst

Special Awards for films about „The cytoplasm of plant cells“ and „The dynamics of ER“

Promotion *sub auspiciis praesidentis rei publicae* (magna cum laude)

MEMBERSHIPS IN SCIENTIFIC SOCIETIES

FESPB	Federation of European Societies of Plant Biology
ASEM	Austrian Society of Electron Microscopy
SAPS	Society for the Advancement of Plant Sciences
RMS	Royal Microscopical Society
SEB	Society of Experimental Biology

TEACHING ACTIVITIES AT THE UNIVERSITY OF VIENNA

Lectures and Lab Courses about	Cell Biology Ecology and Physiology of Cells Light and Video Microscopy Ecology of Carnivorous Plants Ecology of Heavy Metal Plants Science Documentation by Photo and Video
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RECENT AND CURRENT PROJECTS

BIOREM: Appear Project (ÖAD/OEZA) about bioremediation of heavy metal contaminated sites in Peru and Nicaragua, 2011-2014: **386.587,79 €**

UMBRELLA: EU Project on “Using MicroBes for the REgulation of heavy metaL mobiLity at ecosystem and landscape scAle: an integrative approach for soil remediation by geobiological processes”, 2009-2012: **126.000 €** ENV.2008.3.1.2.1 “Recovery of degraded soil resources”.

SALIX: Partner in FWF Project L433-B17 “Evaluation of heavy metal responses in *Salix caprea* for the improvement of phytoextraction strategies”, 2008-2011

DUMP LIFE: Bilateral Project RO/05/2009 with Romania on “Life in heavy metal rich soil”, 2009-2010

PROMOTE: Bilateral Project RO/08/2012 with Romania on “Plants specific for Romanian Ecosystems contaminated by toxic metals and their application for re-cultivation”, 2012-2013

TIPNET: 2002-2005, HPRN-CT-2002-00265 about growth and development of elongated tip-growing plant cells

PUBLICATIONS since 2002

Sassmann, S., Adlassnig, W., Puschenreiter, M., Palomino-Cadenas, J., Leyvas, M., Lichtscheidl, I., Lang, I. (2014): Free metal ion availability is a major factor for tolerance and growth in *Physcomitrella patens*. *Environmental and Experimental Botany* 110: 1-10.
<http://dx.doi.org/10.1016/j.envexpbot.2014.08.010>

Legin, A. A., Schintlmeister, A., Jakupec, M. A., Galanski, M., Lichtscheidl-Schultz, I., Wagner, M. & Keppler, B. K. (2014): NanoSIMS combined with fluorescence microscopy as a tool for subcellular imaging of isotopically labeled platinum-based anticancer drugs. *Chemical Science*: 5, 3135-3143

- Ovečka M., Lichtscheidl I., Šamaj J. (2014): Live microscopy analysis of endosomes and vesicles in tip-growing root hairs. In: Marisa S. Otegui (ed.): Plant Endosomes: Methods and Protocols. Methods in Molecular Biology, vol. 1209. DOI 10.1007/978-1-4939-1420-3_3, © Springer Science+Business Media New York 2014
- Ovečka, M., Takáč, T., Komis, G., Vadovič, P., Bekešová, S., Doskočilová, A., Smékalová, V., Luptovčiak, I., Šamajová, O., Schweighofer, A., Meskiene, I., Jonak, C., Křenek, P., Lichtscheidl, I., Škultéty, L., Hirt, H., Šamaj, J. (2014): Salt-induced subcellular kinase relocation and seeding susceptibility caused by overexpression of Medicago SIMKK in Arabidopsis. Journal of Experimental Botany. In press. doi:10.1093/jxb/eru115.
- Chaturvedi, P., Ischebeck, T., Egelhofer, V., Lichtscheidl, I., Weckwerth, W. (2013): Cell-specific analysis of the tomato pollen proteome from pollen mother cell to mature pollen provides evidence for developmental priming. Journal of Proteome Research 12, 4892-4903.
- Wernitznig, S., Adlassnig, W., Sprocati, A. R., Turnau, K., Neagoe, A., Alisi, C., Sassmann, S., Nicoara, A., Pinto, V., Cremisini, C., Lichtscheidl, I. (2013): Plant growth promotion by inoculation with selected bacterial strains versus mineral soil supplements. J of Env Science and Pollution Research 21, 6877-6887.
- Adlassnig W., Sassmann S., Lendl T., Wernitznig S., Hallberg K.B., Hofhansl F., Lang I., Lichtscheidl I. (2013): Heavy Metal Household of the Former Mining Site Schwarzwand (Salzburg, Austria): spontaneous self cleaning by plants and biofilms. J of Applied Geochemistry 35, 196-206.
- Nebel L., Kreitner G., Horak O., Adlassnig W., Eder G., Palomino E., Leyva M., Lichtscheidl I. (2013): BioRem – Database for remediation of heavy metal rich habitats and protection of their biodiversity. American Journal of Plant Sciences 4, 1938-1940. <http://www.univie.ac.at/biore/>
- Adlassnig W., Koller-Peroutka M., Bauer S., Koshkin E., Lendl T., Lichtscheidl I.K. (2012): Endocytotic Uptake of Nutrients in Carnivorous Plants. The Plant Journal: 71(2):303-13
- Zhang, Y., Kogelnig, D., Morgenbesser, C., Stojanovic, A., Jirsa, F., Lichtscheidl-Schultz, I., Krachler, R., Li, Y., Keppler, B. (2011): Preparation and characterization of immobilized [A336][MTBA] in PVA-alginate gel beads as novel solid-phase extractants for an efficient recovery of Hg (II) from aqueous solutions. J Hazard Mater 196: 201-209. URL <http://dx.doi.org/10.1016/j.jhazmat.2011.09.018>
- Derksen J., Pierson E., Janssen G.J., Wolters-Arts M., Lichtscheidl I.K., Adlassnig W., Ovečka M., Doris F., Steer M. (2011): Wall architecture and wall porosity of Nicotiana tabacum pollen tubes during growth. The Plant Journal: 68 (3): 495-506
- Ovečka M., Berson T., Beck, M., Derksen J., Šamaj J., Lichtscheidl I., (2010) Structural Sterols Are Involved in both the Initiation and Tip Growth of Root Hairs in *Arabidopsis thaliana*. The Plant Cell 22: 2999 -3019.
- Al-Dubai H, Lichtscheidl I, Strobl M, Pittner G, Pittner F (2010) Immunosorbent assay using gold colloid cluster technology for determination of IgEs in patients' sera. Nanotechnology, Science and Applications 2010(3):91-100. DOI 10.2147/NSA.S12926
- Christian R., Kowol C.R., Trondl R., Arion V.B., Michael A., Jakupec M.A., Lichtscheidl I.K., Keppler B.K. (2009): Fluorescence properties and cellular distribution of the investigational anticancer drug Triapine (3-aminopyridine-2-carboxaldehyde thiosemicarbazone) and its zinc(II) complex. Dalton Trans., 2010, 39: 704–706.
- Adlassnig, W., Mayer, E., Koller-Peroutka, M., Pois, W., Lichtscheidl-Schultz, I. (2010): Two American Sarracenia Species as Neophyta in Central Europe. Phytol. Annales Rei Botanicae 49: 279-292.

- Volgger, M., Lang, I., Ovecka, M., Lichtscheidl I. (2010) Plasmolysis and cell wall deposition in wheat root hairs under osmotic stress. *Protoplasma* 243: 51-62.
- Sassmann, S., Wernitznig, S., Lichtscheidl I., Lang, I. (2010) Comparing copper resistance in two bryophytes: *Mielichhoferia elongata* Hornsch. versus *Physcomitrella patens* Hedw. *Protoplasma* 246: 119-123.
- Vaculík M., Lux A., Luxová M., Tanimoto E., Lichtscheidl I.K. (2009): Silicon mitigates cadmium inhibitory effects in young maize plants. *Environmental and Experimental Botany* 67: 52–58.
- Adlassnig W., Steinhauser G., Peroutka M., Musilek A., Sterber J., Lichtscheidl I.K., Bichler M. (2009): Expanding the menu for carnivorous plants: uptake of potassium, iron and manganese by carnivorous pitcher plants. *Applied Radiation and Isotopes* 67: 2117-2122.
- Fillafer C., Ratzinger G., Neumann J., Guttenberg Z., Dissauer S., Lichtscheidl I.K., Wirth M., Gabor F., Schneider M.F. (2009): An acoustically-driven biochip - impact of flow on the cell-association of targeted drug carriers. *Lab on a Chip* 9: 2782–2788.
- Volgger M., Lang I., Ovecka M., Lichtscheidl I. (2009): Plasmolysis and cell wall deposition in wheat root hairs under osmotic stress. *Protoplasma* 243: 51-62. online DOI: 10.1007/s00709-009-0055-6.
- Steinhauser G., Adlassnig W., Lendl T., Peroutka M., Weidinger M., Lichtscheidl I.K., Bichler M. (2009): Metalloid contaminated microhabitats and their biodiversity at a former antimony mining site in Schleining, Austria. *Open Environmental Sciences* 3, 30-35.
- Ovecka M., Baluška F., Lichtscheidl I. (2008): Non-invasive microscopy of tip-growing root hairs as a tool for study of dynamic and cytoskeleton-based vesicle trafficking. *Cell Biol Int* 32, 549-553.
- Illés, P., Schlicht, M., Pavlovkin, J., Lichtscheidl, I., Baluska, F., Ovecka, M. (2006): Aluminium toxicity in plants: internalisation of aluminium into cells of the transition zone in *Arabidopsis* root apices relates to changes in plasma membrane potential, endosomal behaviour, and nitric oxide production. *J. Exp. Botany* 57, 4201-4213.
- Banasova, V., Horak, O., Ciamporova, M., Nadubinska, M., Lichtscheidl, I. (2006): The vegetation of metalliferous and non-metalliferous grasslands in two former mine regions in Central Slovakia. *Biologia* 61, 433-439
- Banasova, V., Horak, O., Ciamporova, M. & I. Lichtscheidl (2008): Heavy metal contents in *Thlaspi caerulescens* J. et C. Presl growing on metalliferous and non-metalliferous soils in Central Slovakia. *Int J Environment and Pollution* 33, 133 - 145
- Adlassnig, W., M. Peroutka, G. Eder, W. Pois, and I. K. Lichtscheidl. 2006b. Ecophysiological observations on *Drosophyllum lusitanicum*. *Ecological Research* 21: 255 - 262.
- Plachno, B., L. Adamec, I. K. Lichtscheidl, M. Peroutka, W. Adlassnig, and J. Vrba. 2006. Fluorescence labelling of phosphatase activity in digestive glands of carnivorous plants. *Plant Biology*: 813 - 820.
- Steinhauser, G., W. Adlassnig, M. Peroutka, A. Musilek, J. H. Sterba, M. Bichler, and I. K. Lichtscheidl (2006) in press. Application of radiotracers in an exotic field of botany: How to feed carnivorous plants. *Journal of Radioanalytical and Nuclear Chemistry*.
- Ovečka, M. Lang I. Baluska F. Isamil A. & Lichtscheidl I. (2005): Endocytosis and Vesicle Trafficking during Tip Growth of Root Hairs. *Protoplasma* 226, 39 – 54. Cover Picture for *Protoplasma*, Volume 226!
- Adlassnig, W., Peroutka M., Lang I., Lichtscheidl I. K. (2005a): Glands of carnivorous plants as a model system in cell biological research. *Acta Botanica Gallica* 152: 111 - 124.

Adlassnig, W., Peroutka M., Lichtscheidl I. K., Lambers H. (2005b): Roots of carnivorous plants. *Plant and Soil* 274: 127 - 140.

Ovečka M, Lichtscheidl I, Baluška F, Šamaj J, Volkmann D, Hirt H (2004) Regulation of root hair tip growth: can mitogen-activated protein kinases be taken into account?. *NATO Series*, In press

Šamaj J, Ovečka M, Hlavacka A, Lecourieux F, Meskiene I, Lichtscheidl I, Lenart P, Salaj J, Volkmann D, Bögre L, Baluška F, Hirt H (2003) Involvement of MAP kinase SIMK and actin cytoskeleton in the regulation of root hair tip growth. *Cell Biology International* 27, 257-259

Samaj J., Ovečka M., Hlavacka A., Lecourieux F., Meskiene I., Lichtscheidl I., Lenart P., Salaj J., Volkmann D., Bögre L., Baluska F., Hirt H., 2002: Involvement of the mitogen-activated protein kinase SIMK in regulation of root hair tip growth. *The EMBO Journal* 21, 3296-3306.

Book chapters

Ovečka, M., Lichtscheidl, I., Samaj, J. (2014): Live Microscopy Analysis of Endosomes and Vesicles in Tip-Growing Root Hairs. In: *Plant Endosomes: Methods and Protocols*. From the Series "Methods in Molecular Biology" Vol 1209. Ed: Otegui MS.

Ovečka, M., Illjes, P., Lichtscheidl, I., Derksen, J., Samaj, J. (2012): Endocytosis and vesicular recycling in root hairs and pollen tubes. Pp 81-106. In: *Endocytosis in plants*. J. Samaj, ed. Springer Berlin Heidelberg. DOI 10.1007/978-3-642-32463-5_4

Adlassnig, W., Wernitznig, S., Lichtscheidl I.K. (2011): Historical Copper Spoil Heaps in Salzburg/Austria: Geology, Mining History, Contamination and Vegetation. In: Kothe E., Varma a. (eds.): *Bio-Geo-Interactions in Contaminated Soils*. Springer Publishing, Berlin.

Adlassnig, W., Lendl, T., Koller-Peroutka, M., Lang, I., Lichtscheidl, I. (2010): Deadly glue: adhesive traps of carnivorous plants. In: *Adhesion Phenomena in Nature: from Structure to Application*. Pp 15-28. Byern, J., Grunwald, I., eds. Springer Wien/New York.

Adlassnig, W., Lendl, T., Peroutka, M., Lichtscheidl, I. (2009): „Insektenfressende Pflanzen“ – Darwin und die Anfänge der Karnivorenforschung. In: *Darwin und die Botanik*. Stöcklin J. and Höxtermann E., eds. Basiliskenpresse im Verlag Natur und Text, Rangsdorf 2009.

Ovečka M., Lichtscheidl I., Baluška F., Šamaj J., Volkmann D., Hirt H. (2008): Regulation of root hair tip growth: can mitogen-activated protein kinases be taken into account?. In: *The Plant Cytoskeleton: a Key Tool for Agro-Biotechnology*. Blume YB et al. (eds), Springer-Verlag, 91-128

Ovečka, M. & Lichtscheidl, I. (2005): Sterol Endocytosis and Trafficking in Plant Cells. In: Šamaj J., Baluška F., Menzel D. (eds.): *The Plant Endocytosis*. Springer Verlag

Adlassnig, W., Peroutka, M., Lambers, H. & Lichtscheidl, I. K. (2005): The Roots of Carnivorous Plants. In: Lambers H. (ed): *Roots: From Gene to Function*

Scientific Films and other publications

Anselm Pavlik: *Regnum Plantae - Das Pflanzenreich: Grünalgen - Chlorophyta* (Regnum Plantae - The Kingdom of Plants: Green Algae - Chlorophyta). Full video on Youtube

Martin Kogler: *Regnum Plantae - Das Pflanzenreich: Charophyceen, Herkunft der Landpflanzen* (Charophyceae - The origin of land plants)

- Matthias Steinböck: Myxomyceten - die Welt der Schleimpilze (Myxogastria - The world of slime molds)
- Pogöschnik G., Zechmeister H., Lichtscheidl I., 2011: Das Pflanzenreich: Moose. Film for Teaching and Education, 20 min, including accompanying publication.
<http://www.youtube.com/watch?v=NjgmXqYrKGA>
<http://www.youtube.com/watch?v=LYbM2kLXvDY>
- Pranjic, K., W. Adlassnig, M. Peroutka, W. Pois, E. Mayer, and I. K. Lichtscheidl., 2008: Flora and ecology of the ombrogenic fen "Schwarzes Moos". *Verhandlungen der Zoologisch-Botanischen Gesellschaft in Österreich*
- Adlassnig, W., Lendl, T., Peroutka, M., Lichtscheidl, I.K., 2008: Ökosystem Moor. Educational Film 60 minutes.
<http://www.univie.ac.at/cius/cell/moorfilm/moorfilm.htm>
- Adlassnig, W., Lendl, T., Peroutka, M., Volgger, M., Lichtscheidl, I.K., 2008: Ökosystem Moor. Accompanying Publication of the Educational Film "Ökosystem Moor". 62 pp
- Lendl T., Peroutka M., Adlassnig W., Lichtscheidl I.K., 2008: Das Hochmoor Heidenreichstein. DVD-Video, Farbe, 12 min., PAL, 4:3
- Eder, G., Lichtscheidl, I.K. (2006): Carnivorous plants of Austrian peat bogs. Scientific Film for the Naturhistorisches Museum in Wien for the exhibition about "Moorleichen"
- Adlassnig, M., Peroutka, W., Pois, & Lichtscheidl, I. K. (2005): *Aldrovanda vesiculosa* and its Cohabitant Algae in Culture. *Carnivorous Plant Newsletter*
- Tschumpel S., Lichtscheidl I., 2002: Capture and digestion of prey in *Utricularia vulgaris*, a carnivorous plant.
- Bauer S., Lichtscheidl I.K., 2001: Drosera: let them live! Film für die Sendung des WWF bei Barbara Stöckl im ORF
- Bauer S., Lichtscheidl I.K., 2001: Tip growth of pollen tubes. Scientific Film for research and education.
- Bauer S., Lichtscheidl I.K., 2001: Polar growth of plant cells. Scientific Film for research and education.
- Bauer S., Ismail A., Derkesen J., Pierson E., Lichtscheidl I.K., 2000: Vesicle dynamics in the apex of tip growing cells: a comparison of *Vaucheria*, root hairs and pollen tubes. NATO Advanced Research Workshop
- Venverloo, C., Lichtscheidl, I.K., Goosen-deRoo, L., Url, W.G., 1995: Mitosis of mature differentiated plant cells: *Nautilocalyx lynchii*, leaf epidermis. Scientific film, ÖWF (Vienna/A), C 2700.
- Lichtscheidl, I.K., 1994: Organelle motility in onion bulb scale inner epidermal cells. Scientific Film, ÖWF (Vienna/A), P 2540.
- Lichtscheidl, I.K., 1995: Organelle motility in plant cells: *Allium cepa* inner epidermis. Film P 2540, Wiss. Film 47, 111-125.
- Lichtscheidl, I.K., Url, W.G., 1988: Das Cytoplasma der Pflanzenzelle: *Allium cepa* - Innenepidermis der Zwiebelschuppe. Wissenschaftlicher Film und Unterrichtsfilm, PT 2209, ÖWF (Vienna/Austria).
- Lichtscheidl, I.K., 1995: Das Cytoplasma der Pflanzenzelle - Innenepidermiszellen der Zwiebelschuppe von *Allium cepa*. Film PT 2209, Wiss. Film 47, 127-151.
- Lichtscheidl, I.K., Url, W.G., 1988: The cytoplasm of the plant cell: *Allium cepa* L. - inner epidermal cells of the onion bulb scale. Scientific film for teaching and education, PT 2209, ÖWF (Vienna/Austria)

- Lichtscheidl, I.K., 1995: The cytoplasm of the plant cell - inner epidermal cells of the onion bulb scale. Film PT 2209, Wiss. Film 47, 41-63.
- Lichtscheidl, I.K., Url, W.G., 1988: The dynamics of endoplasmic reticulum in *Allium cepa* inner epidermal cells. Scientific Film, P 2246, ÖWF (Vienna/A).
- Lichtscheidl, I.K., 1995: Organization and dynamics of endoplasmic reticulum in inner epidermal cells of onion bulb scales. Film P 2246, Wiss. Film 47, 95-109.
- Lichtscheidl, I.K., Url, W.G., 1987: Osmotische Erscheinungen bei Pflanzenzellen: Protoplasmaquellung und Vakuolenzerklüftung. Drosera. Scientific Film, E 2970, IWF (Göttingen/BRD).
- Lichtscheidl, I.K., Url, W.G. 1996: Osmotische Erscheinungen bei Pflanzenzellen: Protoplasmaquellung und Vakuolenzerklüftung. Drosera. Publ. Wiss. Film Biol. 22, 305-318.
- Lichtscheidl, I.K., Url, W.G., 1987: The cytoplasm of *Allium cepa* inner epidermal cells observed by UV-microscopy at 310nm. Scientific Film, P 2119, ÖWF (Vienna/A).
- Lichtscheidl, I.K., Url, W.G., 1995: The cytoplasm of inner epidermal cells observed by uv-microscopy at 310nm. Film P 2119, Wiss. Film 47, 65-78.
- Weiss, D.G., Lichtscheidl, I.K., 1987: The cytoplasm of *Allium cepa* inner epidermal cells observed by AVEC-DIC microscopy. Scientific Film P 2117, ÖWF (Vienna/A).
- Lichtscheidl, I.K., Weiss, D.G., 1995: The cytoplasm of *Allium cepa* inner epidermal cells observed by AVEC-DIC microscopy. Film P 2117, Wiss. Film 47, 79-93.

eLearning Activities

In case you are interested please visit our websites

Volgger, M., Lichtscheidl, I.K., 2008: Mikroskopie. Ein elektronisches Skriptum über die Grundlagen der Lichtmikroskopie.

www.univie.ac.at/mikroskopie

Volgger, M., Strohmaier, J., Lichtscheidl, I.K., 2008: Fotografie. Ein elektronisches Skriptum über die Grundlagen der wissenschaftlichen Fotografie.

www.univie.ac.at/fotografie

Volgger, M., Watzal, F., Lichtscheidl, I.K. 2008: Video. Ein elektronisches Skriptum über die Grundlagen des wissenschaftlichen Films mittels Videotechniken.

www.univie.ac.at/video

Eder, G., Lendl, T., Lichtscheidl I. 2009: Techniques in Life Sciences.

[http://www.univie.ac.at/cius/cell/scifilm/\\$_scifilm.htm#Techniques](http://www.univie.ac.at/cius/cell/scifilm/$_scifilm.htm#Techniques)