Marketa Rinnova, Ph.D.

(Marketa Lebl-Rinnova)

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OBJECTIVE

To find an inspiring work in motivating environment.

EDUCATION

1999 – 2002 Postdoctoral Research Fellow - Torrey Pines Institute for Molecular Studies, San Diego, CA (mentor Richard Houghten, PhD) . Multi-step solid phase synthesis of heterocyclic compounds; imidazolidinone-based peptidomimetics; α-aminoalkyl phosphonopeptides .

1997-1999 Research Scientist Institute of Organic Chemistry and Biochemistry, Prague, Czech Republic, Department of Oligonucleotides; (Group of Ivan Rosenberg, Ph.D). *12-step asymmetric synthesis of novel nucleoside monomers with a pyrrolidine-based replacement of a sugar ring for preparation of phosphonate-oligonucleotide analogs for hybridization studies.*

1992-1997 - Ph.D. program in Organic chemistry - Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic, Prague, Department of Peptides (mentor Michal Lebl, Ph.D). *Organic synthesis and solid phase peptide synthesis, design and synthesis of mixture-based combinatorial library of potential peptidomimetic inhibitors (Statine-based, reduced bond and hydroxyethylamine) of HIV-1 protease mutants (mutant resistant against commercially available drugs – Saquinavir, Ritonavir and Indinavir), the screening of the compounds provided a novel picomolar inhibitor; fragment strategies for preparation of longer peptides (solution and solid-phase methods); development of manual as well as automated solid-phase organic synthesis methodology, development of a cotton-carrier for peptide synthesis, development of an automated solid phase peptide synthesizer COMPAS 242, development of a synthesizer (Spyder Instruments, Inc; San Diego CA) for multiple parallel organic synthesis on solid-phase (in use at Mixture Sciences, Inc., San Diego CA), development of an automated synthesizer for preparation of combinatorial libraries (for Selectide Corp.,now Aventis, Tucson AZ)*.

1986-1990 – Master Degree -- Faculty of Sciences, Department of Inorganic Chemistry, Charles University in Prague, Czech Republic*, Diploma thesis: Reduction of W^{+6} compounds by cyanides under high temperature.*

PROFESSIONAL EXPERIENCE

2008 - University of Illinois, Urbana-Champaign, Prof. Katzenellenbogen's lab, design and synthesis of estrogen receptor (ER) inhibitors, radiolabeled ERα and ERβ for pharmacokinetic studies and precursors for PET imaging.

2002-2007 – Senomyx, Inc. (San Diego, CA), Sr. Scientist; Development of high potency sweeteners, sweet modulators and savory/umami compounds for use in a food industry; targeting sweet and umami GPCR receptors (T1R1/T1R2, T1R2/T1R3). Identification of leads from synthetic and natural products chemical libraries, lead optimization (medicinal chemistry and SAR methodology). Coordination of a team on lead series and supervision of sub-projects. Personal focus on nitrogen containing heterocyclic modifications.

2002 – Mixture Sciences, Inc. (San Diego, CA), Chemist; Design and synthesis of peptide-based ligands for immunological assays.

1993 – Industrial training (3 months), Ferring-Leciva, (now Polypeptide Institute, Prague, Czech Republic); *Synthesis of Octreotide analogs, and evaluation of automated peptide synthesizer COMPAS 242*.

1992-1996 – Member of a team for development of automated solid phase synthesizers -- *evaluation and optimization of chemistry and software applications*, Academy of Sciences of the Czech Republic, Prague.

1991-1992 Research Associate -- Department of Peptides, Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic, Prague; *Solid phase peptide synthesis, purification techniques, solution chemistry preparation of unnatural amino acids and their protection for solid phase methodology*.

Other skills:
Languages: Czech (native), English (fluent), Russian (partial knowledge).

Publications:

- V. Vanek, M. Budesinsky, M. Rinnova and I. Rosenberg, *Prolinol-based nucleoside phosphonic acids: new isosteric conformationally flexible nucleotide analogues.* Tetrahedron 65(4): 862-876 (2009).
- V. Vanek, M. Budesinsky, I. Kavenova, M. Rinnova and I. Rosenberg, *Isosteric Phosphonate Pyrrolidine-Based Dinucleoside Monophosphate Analogues.* Nucleosides, Nucleotides & Nucleic Acids 22: 1065-1067 (2003).
- M. Rinnova, A. Nefzi and R.A. Houghten, *Opioid activity of 4-imidazolidinone positional analogs of Leu-Enkephalin.* Bioorg. Med. Chem. Lett. 12: 3175-3178 (2002).
- M. Rinnova, A. Nefzi and R.A. Houghten, *An expedient method for the solid-phase synthesis of α-aminoalkyl phosphonopeptides,* Tet. Lett. 43: 4103-4106 (2002).

- M. Rinnova, A. Nefzi and R.A. Houghten, *An efficient approach for solid-phase synthesis of a new class of pseudo-proline peptidomimetics based on 4-imidazolidinones*, Tet. Lett. 43: 2343-2346 (2002).
- M. Rinnova, A. Vidal, A. Nefzi and R.A. Houghten, *Solid-Phase Synthesis of 1,2,5-Trisubstituted 4-Imidazolidinones*, J. Comb. Chem 4: 209-213 (2002).
- Barinka, M. Rinnova, P. Sacha, C. Rojas, P. Majer, B.S. Slusher and J. Konvalinka, *Substrate Specificity, Inhibition and Enzymological Analysis of Recombinant Human Glutamate Carboxypeptidase II.* , J. Neurochem., 80: 477-487 (2002).
- D. Rejman, J. Snasel, R. Liboska, Z. Tocik, O. Paces, S. Kralikova, M. Rinnova, P. Kois and I. Rosenberg, *Oligonucleotides with isopolar phosphonate internucleotide linkage: a new perspective for antisense compounds?* Nucleos. Nucleot. Nucleic Acids 20: 819-23 (2001).
- M. Rinnova, M Hradilek, C. Bařinka, J. Weber, M. Souček, J. Vondrášek, T. Klimkait and J. Konvalinka, *A Picomolar Inhibitor of Resistant Strains of Human Immunodeficiency Virus Protease Identified by a Combinatorial Approach*, Arch. Biochem. Biophys*.,* 382: 22-30 (2000).
- M. Rinnova, M. Nováková, V. Kašička and J. Jiráček; *Side Reactions during Photochemical Cleavage of an α-Methyl-6-nitroveratryl-based Photolabile Linker,* J. Peptide Sci*.,* 6: 355-365 (2000).
- M. Rinnova and I. Rosenberg, *3'-N-phosphonomethyl derivatives of pyrrolidine nucleosides related to L-nucleotides,* Collect. Czech. Chem. Commun. S: 60-62 (1999).
- M. Rinnova, M. Lebl and M. Souček; *Solid-Phase Peptide Synthesis by Fragment Condensation: Coupling in Swelling Volume*, Lett. Peptide Sci*.,* 6: 15-22 (1999).
- M. Flegel, M. Rinnova, Z. Panek, L. Lepsa and I. Blaha, *Use of Gaseous Ammonia for Detachment of Peptides from Various Carriers – Development of Production Process,* Peptides: Chemistry, Structure and Biology (P.T.P. Kaumaya and R.S. Hodges, Eds.) Mayflower Scientific, Ltd. (1996).
- M. Rinnova and M. Lebl; *Molecular Diversity and Library of Structures: Synthesis and Screening*, Collect. Czech. Chem. Commun*.,* 61: 171-231 (1996).
- Z. Bartak, J. Bolf, J. Kalousek, P. Mudra, M. Pavlik, V. Pokorny, M. Rinnova, Z. Voburka, K Zenisek, V. Krchňák, M. Lebl, S.E. Salmon and K.S. Lam; Design and *Construction of the Automatic Peptide Library Synthesize*r, METHODS: A Companion to Methods in Enzymology*,* 6: 432-437 (1994).
- V. Pokorny, P. Mudra, J. Jehnicka, K. Zenisek, M. Pavlik. Z. Voburka, M. Rinnova, A. Stierandova, A.W. Lucka, J. Eichler, R. Houghten and M. Lebl; *Compas 242. New type of Multiple Peptide Synthesizer Utiilizing Cotton and Tea Bag Technology,* Solid Phase Synthesis & Complementary Technologies 1994 (R. Epton, Ed.), 106-110, Mayflower Scientific.
- M. Rinnova, J. Ježek, P. Maloň and M. Lebl; *Comparative Multiple Synthesis of Fifty Linear Peptides: Evaluation of Cotton Carrier vs. Tea-Bag Benzhydrylamine Resin*, Peptide Research*,* 2: 88-93 (1993).

Patents:

- Tachdjian, Catherine; Karanewsky, Donald S.; Tang, Xiao-Qing; Li, Xiaodong; Zhang, Feng; Servant, Guy; Chen, Qing; Darmohusodo, Vincent; Fine, Richard; Fotsing, Joseph

R.; Hammaker, Jeffrey Robert; Kang, Xinshan; Kimmich, Rachel D. A.; Klebansky, Boris; Liu, Haitian; Petrovic, Goran; Rinnova, Marketa; Adamski-Werner, Sara; Yamamoto, Jeffrey; Zhang, Hong; Zlotnik, Albert; Zoller, Mark. Modulation of chemosensory receptors and heterobicyclic ligands associated therewith and their preparation. PCT Int. Appl. (2008), 493pp. CODEN: PIXXD2 WO 2008154221 A2 20081218

- Servant, Guy; Li, Xiaodong; Zhang, Feng; Liu, Haitian; Tachdjian, Catherine; Tang, Xiao-Qing; Werner, Sara; Rinnova, Marketa; Chen, Qing; Zlotnik, Albert; Zoller, Mark; Klebansky, Boris; Fine, Richard; Kang, Xinshan. Modulation of chemosensory receptors and heterobicyclic ligands associated therewith and their preparation. U.S. Pat. Appl. Publ. (2008), 102pp. CODEN: USXXCO US 2008306093 A1 20081211
- Tachdjian, Catherine; Tang, Xiao-Qing; Werner, Sara; Rinnova, Marketa; Chen, Qing; Servant, Guy; Li, Xiaodong; Zhang, Feng; Liu, Haitian; Zlotnik, Albert; Zoller, Mark; Klebansky, Boris; Fine, Richard; Kang, Xinshan. Preparation of quinazolines, thienopyrimidines, and other heterocyclic modulators of chemosensory receptors and their ligands for use in drugs and foods. U.S. Pat. Appl. Publ. (2008), 102pp., Cont.-in-part of U.S. Ser. No. 760,592. CODEN: USXXCO US 2008306053 A1 20081211
- Tachdjian, Catherine; Patron, Andrew P.; Bakir, Farid; Averbuj, Claudia; Priest, Chad; Adamski-Werner, Sara L.; Chen, Qing; Darmohusodo, Vincent; Lebl-Rinnova, Marketa; Kimmich, Rachel D. A.; Tang, Xiao-Qing; Shigemura, Rhondi. Bis-aromatic amides and their uses as sweet flavor modifiers, tastants and taste enhancers. PCT Int. Appl. (2006), 163pp. WO 2006138512 A2 20061228
- Tachdjian, Catherine; Lebl-Rinnova, Marketa; Wallace, David. Compounds comprising linked hetero aryl moieties and their use as novel umami flavor modifiers, tastants and taste enhancers for comestible compositions. PCT Int. Appl.(2006),108pp. WO 2006084186 A2 20060810
- Tachdjian, Catherine; Patron, Andrew; Lebl-Rinnova, Marketa; Tang, Xiao-Qing; Darmohusodo, Vincent; Priest, Chad. Molecules comprising linked organic moieties as flavor modifiers for comestible compositions. PCT Int. Appl. (2006),149 pp. WO 2006084184 A2
- Tachdjian, Catherine; Patron, Andrew P.; Adamski-Werner, Sara L.; Bakir, Farid; Chen, Qing; Darmohusodo, Vincent; Hobson, Stephen Terrence; Li, Xiadong; Qi, Ming; Rogers, Daniel Harry; Rinnova, Marketa; Servant, Guy; Tang, Xiao-Qing; Zoller, Mark; Wallace, Mark; Xing, Amy; Gubernator, Klaus. Novel flavors, flavor modifiers, tastants, taste enhancers, umami or sweet tastants, and/or enhancers and use thereof. PCT Int. Appl. (2005), 262 pp. WO 2005041684 A2 20050512
- Tachdjian, Catherine; Patron, Andrew P.; Qi, Ming; Adamski-Werner, Sara L.; Tang, Xiao-Qing; Chen, Qing; Darmohusodo, Vincent; Lebl-Rinnova, Marketa; Priest, Chad. Aromatic amides and ureas and their uses as sweet and/or umami flavor modifiers, tastants and taste enhancers. U.S. Pat. Appl. Publ. (2006), 168 pp., Cont.-in-part of U.S. Ser. No. 913,303. US 2006045953 A1 20060302
- P. Mudra, J. Kalousek, M. Pavlik, K. Zenisek, Z. Voburka, V. Pokorny, M. Rinnova, *Reactor for multisequence synthesis of peptides*. Czech Rep. (1996) CZ 280615 B6 19960313, AN 1997: 475981
- M. Pavlik, M. Rinnova, I. Blaha, *Process for preparation of two-chain peptides coupled with disulfide or lactam bridges.* Czech Rep. (1996), CZ 280549 B6 19960214, AN 1997:41525

- J. Kalousek, V. Pokorny, M. Pavlik, P. Mudra, M. Rinnova, Z. Voburka, K. Zenisek, Z. Bartak, J. Bolf, *Reaction vessel for multisequential synthesis of peptides and peptide libraries.* Czech Rep. (1996), CZ 280720 B6 19960417, AN 1996: 571804

Posters and Oral Communications:

- Kocalka, Petr; Rinnova, Marketa; Vanek, Vaclav; Rejman, Dominik; Votruba, Ivan; Tomeckova, Ivana; Kralikova, Sarka; Petrova, Magdalena; Pav, Ondrej; Pohl, Radek; Budesinsky, Milos; Liboska, Radek; Tocik, Zdenek; Rosenberg, Ivan. Novel nucleoside phosphonic acids-based inhibitors of thymidine phosphorylase. Collection Symposium Series (2005), 7(Chemistry of Nucleic Acid Components), 415-416.
- A. Vidal, A. M. Rinnova, A. Nefzi and R.A. Houghten; *Solid-Phase Synthesis of α,α-Difluoro-β-Amino Acids by Reformatsky Reaction.* In 223rd National Meeting of ACS, Orlando, FL, 2002.
- A. Nefzi, A. Vidal, M. Rinnova and R.A. Houghten; *N-Substituted Benzotriazole: Useful Template for the Solid-Phase Synthesis of Diverse Small Molecule Compounds.* In 7th Solid Phase Synthesis & Combinatorial Chemical Libraries Proceedings (R. Epton, Ed.), Mayflower Worldwide Ltd., England, UK, 2002.
- M. Rinnova, A. Vidal, A. Nefzi and R.A. Houghten, *Solid-Phase Synthesis of 1,2,5-Substituted Derivatives of 4-Imidazolidinone,* 17th American Peptide Symposium, San Diego 6/9-6/14 (2001). poster 121
- M. Rinnova and I. Rosenberg, 3'-*N*-phosphonomethyl derivatives of pyrrolidine nucleosides related to L-nucleotides, 11. International Conference of Chemistry of Nucleic Acid Components, Spindleruv Mlyn (CZ), 9/04-9/09 (1999). oral communication
- M. Hradilek, M. Rinnova, C. Bařinka, M. Souček and J. Konvalinka, *Analysis of substrate inhibitor specificity of HIV protease species*. In: *Peptides for the New Millennium. 16th* S: 305, *American Peptide Symposium,* Minneapolis (1999). poster 631
- M. Rinnova, M. Nováková and J. Jiráček, *Side reactions during photochemical cleavage of α-methyl-6-nitroveratryl - based photolabile linker,* In: *Peptides for the New Millennium. 16th American Peptide Symposium,* Minneapolis (1999). poster 071
- M. Rinnova, M. Soucek, M. Fusek and M. Lebl, *Critical Points of Solid Phase Fragment Synthesis of Long Peptides*, 15th American Peptide Symposium, Nashville, (1997). poster
- L. Lepsa, M. Flegel and M. Rinnova, The Use of Gases in Solid Phase Peptide Synthesis23rd European Peptide Symposium, Braga, Portugal, Poster (1994). poster
- M. Pavlik, J.E. Dyr, I. Blaha, L. Doleckova, T. Vojkovsky and M. Rinnova, Positional Cotton Peptide Libraries and Sublibraries, 23rd European Peptide Symposium, Braga, Portugal, Poster 213 (1994). poster
- J. Jezek, M. Rinnova and M. Lebl, *Simultaneous Multiple Peptide Synthesis: Comparison of Tea-bags and Cotton*, 21st European Peptide Symposium, Peptides 1992, 306-307 (1993). poster
- J. Jezek, M Rinnova and M. Lebl; *Comparison of Various Ways of Simultaneous Multiple Peptide Synthesis,* Poster 371, 12th American Peptide Symposium, Cambridge, Massachusetts (1991). poster