

CURRICULUM VITAE

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Education

Institution and Location	Degree	Year	Field of Study
Faculty of Agriculture, Kyoto University, Kyoto, Japan	B.Sc.	1996	Food Science and Technology
Graduate School of Agriculture, Kyoto University, Kyoto, Japan	M.Sc.	1998	Food Protein-Derived Bioactive Peptide Science
Graduate School of Agriculture, Kyoto University, Kyoto, Japan	Ph.D.	2001	Food Protein-Derived Bioactive Peptide Science
Graduate School of Agriculture, Kyoto University, Kyoto, Japan	Post-Doc	2001	Food Protein-Derived Bioactive Peptide Science
Department of Plant Biology, Arizona State University, Arizona	Post-Doc	2002	Plant Biotechnology and Vaccinology

Positions:

Apr 2001- Jul 2001	Post-Doctoral Fellow Research Institute for Food Science, Kyoto University, Japan
Jul 2001- Mar 2002	Visiting Scientist Department of Plant Biology, Arizona State University, Arizona, U.S.A.
Apr 2002- Mar 2004	Postdoctoral Research Associate Department of Plant Biology, Arizona State University, Arizona, U.S.A.
Apr 2004- Aug 2005	Faculty Research Associate The Biodesign Institute at Arizona State University, Arizona, U.S.A.
Sep 2005- present	Research Assistant Professor The Biodesign Institute at Arizona State University, Arizona, U.S.A.

Honors and Awards:

1996-1999	Awarded by Japan Scholarship Foundation
1/2000-3/2002	Japan Society for the Promotion of Science Research Fellowship for Young Scientist
4/2004-3/2006	Japan Society for the Promotion of Science Postdoctoral Fellowship for Research Abroad
2005	Keystone Symposia X8-HIV Vaccines Travel Award
2005	Society for Mucosal Immunology Young Investigator Award

Ad hoc Reviewer:

Vaccine, Journal of Bioscience and Bioengineering

Workshops & Courses Attended:

Jan 26-28, 2005	Three-day Professional Grant Writing Workshop by The Grant Institute (held at Northern Arizona University), Flagstaff, AZ
Nov 8-21, 2005	Phage Display of Proteins and Peptides Course at Cold Spring Harbor Laboratory, Cold Spring Harbor, NY

Teaching Experience

June, 2004	Guest Lecturer, the bioengineering graduate course at Osaka University, Japan
5/2006–present	Mentor, Corona del Sol High School Honors Professional Internship Program (Students: Jon Hu, Howard Cheng)

Laboratory Mentoring:

Undergraduate students

- Mitchell Lepetich (2003 in Mor lab)
- Jacob Jones (2003-2004 in Mor lab)
- Jeffrey Doran (2004-2005 in Mor lab)
- Tagan Griffin (2005-present in Mor lab)

Graduate students

- Yuko Yamada (1999-2001 in Yoshikawa lab)
- Kunihiro Onishi (2000-2001 in Yoshikawa lab)
- Sarah Kessans (2006-present in Mor lab)
- Namrata Shah (2006-present in Mor lab)

Invited Lectures:

1. “Heat-stable oral vaccines from transgenic plants” Invited talk in Pharmaceutical Sciences World Congress 2004, Kyoto, Japan, May 30–June 3, 2004.
2. “The Bioengineered Plant-Derived Vaccines: Developing Oral Vaccines from Transgenic Plants” Invited seminar at National Institute of Advanced Industrial Science and Technology, Sapporo, Japan, August 2005. Host: Dr. Takeshi Matsumura

Visiting Lectures:

1. “Oral Vaccines from Transgenic Plants” at Virus-Cell Interaction Section, HIV Drug Resistance Program, National Cancer Institute at Frederick, Frederick, Maryland, July 2005. Host: Dr. Eric O. Freed.
2. “Fighting the HIV/AIDS Pandemic: Developing Vaccines Aimed at Blocking HIV-1 Transmission” at California Department of Health Services, Richmond, California, October 2005. Host: Dr. Carl V. Hanson
3. “Plant-Derived Vaccines” at Departments of Pediatric Dentistry and Microbiology, Immunobiology Vaccine Center, University of Alabama at Birmingham, Birmingham, Alabama, January 2006. Host: Dr. Kohtaro Fujihashi

Peer-Reviewed Publications:

Original Research Articles:

1. **Matoba, N.**, Griffin, TA, Mittman, M., Kilbourne, J., Alfsen, A., Bomsel, M. and Mor, TS. Molecular characterization of CTB-MPR₆₄₉₋₆₈₄, a mucosal vaccine candidate blocking HIV-1 transcytosis: evidence for specific oligomerization of the MPR domain. *In preparation*.
2. **Matoba, N.**, Geyer, BC., Kilbourne, J., Alfsen, A., Bomsel, M. and Mor, TS. (2006) Humoral immune responses by prime-boost heterologous route immunizations with CTB-MPR₆₄₉₋₆₈₄, a mucosal subunit HIV/AIDS vaccine candidate. *Vaccine* 24:5047-5055.
3. **Matoba, N.**, Magérus, A., Geyer, BC., Zhang, Y., Muralidharan, M., Alfsen, A., Arntzen, CJ., Bomsel, M. and Mor, TS. (2004). A mucosally targeted subunit vaccine candidate eliciting HIV-1 transcytosis-blocking Abs. *Proc. Natl. Acad. Sci. U.S.A.* 101:13584-13589.
4. Onishi, K., **Matoba, N.**, Yamada, Y., Doyama, N., Maruyama, N., Utsumi, S. and Yoshikawa, M. (2004). Optimal designing of beta-conglycinin to genetically incorporate RPLKPW, a potent anti-hypertensive peptide. *PEPTIDES* 25:37-43.
5. Yamada, Y., **Matoba, N.**, Usui, H., Onishi, K. and Yoshikawa, M. (2002). Design of potent anti-hypertensive peptide based on ovokinin(2-7). *Biosci. Biotechnol. Biochem.* 66:1213-1217.
6. **Matoba, N.**, Doyama, N., Yamada, Y., Maruyama, N., Utsumi, S. and Yoshikawa, M. (2001). Design and production of genetically modified soybean protein with anti-hypertensive activity by incorporating potent analogue of ovokinin(2-7). *FEBS Lett.* 497:50-54.
7. **Matoba, N.**, Yamada, Y., Usui, H., Nakagiri, R. and Yoshikawa, M. (2001). Designing potent derivatives of ovokinin(2-7), an anti-hypertensive peptide derived from ovalbumin. *Biosci. Biotechnol. Biochem.* 65:736-739.
8. **Matoba, N.**, Usui, H., Fujita, H. and Yoshikawa, M. (1999). A novel anti-hypertensive peptide derived from ovalbumin induces nitric oxide-mediated vasorelaxation in an isolated SHR mesenteric artery. *FEBS Lett.* 452:181-184.

Review Articles:

1. **Matoba, N.** and Arntzen, CJ. (2005) A current perspective on molecular farming in the USA. Invited review from *Seibutsu-kogaku Kaishi* 83(11):519-521. In Japanese.
2. **Matoba, N.** (2005). Plant-derived vaccines: an emerging technology towards the distribution of vaccines in developing countries. *Seibutsu-kogaku Kaishi* 83(1):36. In Japanese.
3. **Matoba, N.**, Yamada, Y. and Yoshikawa, M. (2003). Design of a genetically modified soybean protein preventing hypertension based on an anti-hypertensive peptide derived from ovalbumin. *Curr. Med. Chem.-Cardiovascular & Hematological Agents* 1:197-202.
4. Yoshikawa, M., Fujita, H., **Matoba, N.**, Takenaka, Y., Yamamoto, T., Yamauchi, R., Tsuruki, H. and Takahata, K. (2000) Bioactive peptides derived from food proteins preventing lifestyle-related diseases. *BioFactors* 12:143-146.

Other Publications:

Book Chapters:

1. **Matoba, N.** and Mor, TS. (2006). Plant-derived subunit vaccines. In: *Plant Genetic Engineering vol. 7: Metabolic Engineering & Molecular pharming* Pawan K. Jaiwal (Ed.), pp143-183, Haworth Press Inc., New York

Congress Proceedings:

1. Onishi, K., **Matoba, N.**, Yamada, Y., Utsumi, S., Maruyama, N. and Yoshikawa, M. (2003). Design of highly functional soybean protein by genetic introduction of anti-hypertensive peptide. In *"Peptide Science 2002"* (Ed. by T. Yamada), pp.123-126, The Japanese Peptide Society.
2. Yoshikawa, M., **Matoba, N.**, Nakagiri, R., Fujita H. and Sasaki, R. (1997). Ovokinin is an agonist for angiotensin AT₂ receptors. In *"Peptide Chemistry 1996"* pp.141-144, The Japanese Peptide Society.

Patents:

1. **Matoba, N.** Mor, TS., Arntzen, CJ. US Patent Application #20060013831, "Composition and method for enhancing immune response"
2. **Matoba, N.**, Griffin, T., Mittman, M., Mor, TS. "Method for purifying cholera toxin and its derivatives/analogues using double affinity matrix" (pending)

Presentations (since 2000):

1. **Matoba, N.**, Mittman, M., Griffin, TA., Cherni, I., Alfsen, A., Bomsel, M., Arntzen, CJ., and Mor, TS. "A mucosal subunit HIV-1 vaccine candidate expressed in *N. benthamiana*" in New Cells for New Vaccines, Coral Gables, Florida, September 28 – 29, 2006. (Poster presentation)
2. **Matoba, N.**, Geyer, BC., Alfsen, A., Arntzen, CJ., Bomsel, M. and Mor, TS. "Humoral immunity directed at gp41-MPR for the prevention of HIV-1 mucosal transmission" in 5th International Conference: AIDS Vaccine 2006, Amsterdam, Netherlands, August 29 – September 1, 2006. (Poster presentation)
3. **Matoba, N.**, Alfsen, A., Bomsel, M. Hanson, CV., Arntzen, CJ., and Mor, TS. "Developing Vaccines Aimed at Blocking HIV-1 Transmission" in Annual meeting of Japan Society for Bioscience, Biotechnology, and Agrochemistry, Kyoto, Japan, April 2006. (Oral presentation)
4. **Matoba, N.**, Magérus, A., Geyer, BC., Alfsen, A., Hanson, CV., Arntzen, CJ., Bomsel, M. and Mor, TS. "Humoral immunity induced by CTB-MPR₆₄₉₋₆₈₄ towards the prevention of HIV-1

- mucosal transmission/infection” in 12th International Congress of Mucosal Immunology, Boston, USA, June 24 – 30, 2005. (Poster presentation)
5. **Matoba, N.**, Magérus, A., Geyer, BC., Alfsen, A., Hanson, CV., Arntzen, CJ., Bomsel, M. and Mor, TS. “Humoral immunity induced by CTB-MPR₆₄₉₋₆₈₄ for the prevention of HIV-1 mucosal transmission/infection” in Plant-Based Vaccines & Antibodies, Prague, Czech Republic, June 8 – 10, 2005. (Oral presentation)
 6. **Matoba, N.**, Magérus, A., Geyer, BC., Alfsen, A., Hanson, CV., Arntzen, CJ., Bomsel, M. and Mor, TS. “Humoral immunity induced by CTB-P1 for the prevention of HIV-1 mucosal transmission/infection” in keystone Symposia X-8 HIV Vaccines, Banff, Canada, Aril 9 – 15, 2005. (Poster presentation)
 7. **Matoba, N.**, Mor, T.S. and Arntzen, C.J. “Heat-stable oral vaccines from transgenic plants” in Pharmaceutical Sciences World Congress 2004, Kyoto, Japan, May 30–June 3, 2004. (Invited talk)
 8. **Matoba, N.**, Bomsel, M., Arntzen, C.J. and Mor, T.S. “Towards a mucosal vaccine against HIV” in 2003 Congress on In Vitro Biology, Portland, USA, May 31 – June 4, 2003. (Oral presentation)
 9. **Matoba, N.**, Bomsel, M., Arntzen, C.J. and Mor, T.S. “Immunostimulatory effect of a HIV envelope-derived peptide” in 11th International Congress of Mucosal Immunology, Orlando, USA, June 16–20, 2002. (Poster presentation)
 10. **Matoba, N.**, Yamada, Y., Doyama, N., Maruyama, N., Utsumi, S. and Yoshikawa, M. “Design of a highly potent anti-hypertensive peptide derived from ovokinin III and genetic introduction of the peptide into a soybean protein” Annual meeting of Japan Society for Bioscience, Biotechnology, and Agrochemistry, Kyoto, Japan, March, 2001. (Poster presentation)
 11. **Matoba, N.**, Doyama, N., Maruyama, N., Utsumi, S. and Yoshikawa, M. “Genetic introduction of an ovokinin III derivative peptide possessing potent anti-hypertensive activity into a heterologous food proteins” Annual meeting of Japan Society for Bioscience, Biotechnology, and Agrochemistry, Tokyo, Japan, April, 2000. (Poster presentation)