

BIOGRAPHICAL SKETCH

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NAME Pravin T.P. Kaumaya		POSITION TITLE Professor Director Div. Reprod. Biol & Vaccine Research	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Central London, England	B.Sc. (Hons)	1976	Biochemistry
Portsmouth School of Pharmacy, England	PhD	1981	Medicinal Chemistry
College of Pharmacy, Univ. of Texas at Austin	Postdoc	1981	Medicinal Chemistry

A. Positions and Honors

1976-1977	Predoctoral Student, University of Central London, England
1977-1981	Research Assistant, Portsmouth School of Pharmacy, University of Portsmouth, Hampshire, England
1981-1983	Postdoctoral Fellow, University of Texas at Austin, College of Pharmacy, Austin, Texas
1983-1984	Senior Research Associate, University of Texas, Drug Dynamics Institute, Texas
1984-1988	Research Associate, Northwestern University, Dept. of Biochem, Mol & Cell Biol, Evanston, IL
1988-1989	Research Assistant Professor, Northwestern University, Dept. Biochem, Mol & Cell Biol, Evanston, IL
1989-1993	Assistant Professor, The Ohio State University, College of Medicine, Dept. OB/GYN, Medical Biochemistry, College of Biological Sciences, Dept of Microbiology, Columbus, Ohio
1989-present	Full Member, Comprehensive Cancer Center and Director Peptide & Protein Engineering Laboratory
1993-1998	Associate Professor, Depts OB/GYN; Medical Biochemistry; and Microbiology
1994-1999	Director, Biopolymer Facility. OSU Campus Chemical Instrument Center
1998-present	Professor, Depts Ob/Gyn; Molecular and Cellular Biochemistry; and Microbiology
2002-present	Director, Division of Reprod. Biol & Vaccine Research

Professional Membership and Other Professional Activities:

M. R. C. S.	Member of the Royal Society of Chemistry, UK;	A. C. S.	Member of the American Chemical Society
F. A. I. C.	Fellow of the American Institute of Chemists;	A. P. S.	Charter Member American Peptide Society
A A A S	American Association for the Advancement of Science;	A.A.I.	American Association of Immunologists
	CHAIRMAN, 14TH AMERICAN PEPTIDE SYMPOSIUM, The Ohio State University, June 1995.		
	Member Editorial Board <i>Letters in Peptide Science</i> , (1994-present), Escom, London		
	Member Editorial Board <i>Biomedical Peptides, Protein and Nucleic Acids</i> , (1994-present) Mayflower Scientific Ltd, UK		
	Guest Editor, Special issue <i>Biomedical Peptides, Protein and Nuclei acids</i> , June 1995 issue on Peptide Vaccines		
	NIH Study Section " <i>Bioorganic and Natural Products Chemistry</i> " Oct 1995		
	Editor PEPTIDES: <i>Chemistry, Structure & Biology</i> . (1996), Mayflower Scientific Ltd. ISBN7011-0-3		
	Member Editorial Board <i>Journal of Peptide Research</i> (1997-) present) Munksgaard, Copenhagen		
	Chairman, 1 st International Symposium Peptide, Protein and Nucleic Acid Vaccine Strategies, July, 1998, Univ. of Oxford, UK.		
	Editor PEPTIDES, <i>Frontiers of Peptide Science</i> . (1999), Kluwer Academic Publishers, The Netherlands		
	U.S. Patent 08/460,502 <i>Synthetic Chimeric Fimbrin Peptides Otitis Media Vaccine</i>		
	Elected to the Board of Trustees, OHIO CANCER RESEARCH ASSOCIATES		
	NCI Study Section <i>Shared Resources for Scientists Outside NCI Cancer Centers</i> . March 1999		
	EDITOR <i>Journal of Peptide Science</i> , (1997—2003) John Wiley & Sons, England		
	NIH Study Section <i>Aids and Related Vaccine Strategies @ ZRG1-Vacc (2b)</i> , Nov 1998-2003		
	Guest Editor <i>Advances in Peptide, Protein and Nucleic Acid Vaccine Strategies: Vaccine 18 (3-4), 1999</i>		
	US Patent:60/146,869 and International PCT WO 01/08636: Peptides for enhancing Immune Reactivity to HER-2 Protein.		
	Chairperson, NIH Study section: <i>Aids and Related Vaccine Strategies, ZRG1-Vacc 2001-present.</i>		

Principal Investigator/Program Director (Last, First, Middle):

Chairperson, NIH Bioterrorism study section, 2002-2003,

US Patent # 6,436,405 B1 Synthetic Chimeric Fimbrin Peptides (Otitis Media Vaccine) issued August 20, 2002

PCT WO 02/42415A2 Agents for blocking T cell mediated Immune Responses, issued 05/03/02

Holder of IND for Phase 1 Clinical Trial BB-IND-9803: Immunotherapy with Multi epitope Vaccine in Cancer Patients

B. Selected Publications (from >105 articles)

- Casten, L., **Kaumaya, P.T.P.**, and Pierce, S.K. (1988) *Enhanced T-cell responses to antigenic peptides targeted to B-cell surface Ig, Ia or class II molecules.* **J. Exp. Med.** 168,171-180.
- Pierce, S.K., Morris, J., Grusby, M., **Kaumaya, P.T.P.**, Van Buskirk, A., Srinivasan, M., Crump, B. and Smolenski, L. (1988) Antigen presenting function of B lymphocytes. **Immunological Reviews**, 106:149-180.
- Hogrefe, H.H., **Kaumaya, P.T.P.** and Goldberg, E. (1989) *Immunogenicity of Synthetic Peptides Corresponding to Flexible and Antibody-accessible Segments of Mouse Lactate Dehydrogenase (LDH-C4).* **J. Biol. Chem.**, 264, 10513-9.
- Kaumaya, P.T.P.**, Berndt, K., Heindorn, D., Trehwella, J., Kezdy, F.J. and Goldberg, E. (1990) *Synthesis and Biophysical Characterization of Topographic Immunogenic Determinants with aa Topologies.* **Biochemistry**, 29,13-23.
- Kaumaya, P.T.P.**, VanBuskirk, A.M., Goldberg, E. and Pierce, S.K. (1990) *Predetermined Supersecondary structural motifs in the de novo design of Antigenic sites.* In **Peptides Chemistry, Structure and Biology**, (Rivier, J. and Marshall, G., Eds.) Escom, Leiden, 709-713..
- Smolenski, L., **Kaumaya, P.T.P.**, Atassi, Z. and Pierce, S.K. (1990) Characteristics of Peptides which Compete for Processed Antigen binding Sites on Antigen Presenting-Cells. **Eur. J.Immunol.**, 20: 953-960.
- Kaumaya, P.T.P.**, VanBuskirk, A., Kobs, S., Goldberg, E. and Pierce, S.K. (1991) *Peptide Engineering of Protein Topographic Determinants as Vaccines.* In **Peptides 1990** (Giralt, E. and Andreu, D., Eds.) Escom, Leiden, pp611- .
- Kaumaya, P.T.P.**, Feng, N., Kobs-Conrad, S., Seo, Y.H., VanBuskirk, A.M. and Sheridan, J.F. (1992) *Immunogenicity and Antigenicity of a Promiscuous T cell Epitope and a Topographic B cell Determinant of the Protein Antigen LDH-C₄.* In **Peptides Chemistry and Biology**, (Smith, J.A. and Rivier, J., Eds.) pp. 883-.
- Kobs-Conrad, S., Gerdau, A. and **Kaumaya, P.T.P.** (1992) *Multivalent B cell and T cell Epitope Vaccine Design.* In **Peptides: Chemistry, Structure & Biology**, (Smith, J.A. and Rivier, J., Eds.) pp. 886-888.
- Kaumaya, P.T.P.**, VanBuskirk, A., Goldberg, E. and Pierce, S.K. (1992) *Design and Immunological Properties of Topographic Immunogenic Determinants of a Protein Antigen (LDH-C₄) as Vaccines.* **J. Biol. Chem.**, 267, 6338-6346.
- Kobs-Conrad, S., Lee, H., DiGeorge, A.M. and **Kaumaya, P.T.P.** (1993) *Folding and Immunogenicity of a Loop-structured Peptide using the Zinc Finger Motif.* In **Peptides 1992** (C.H. Schneider and A.N. Eberle, Eds.) pp 561-.
- Seo, Y.H., Kobs-Conrad, S. and **Kaumaya, P.T.P.** (1993) *Promiscuous T cell Epitopes of Tetanus Toxin and Measles Virus Enhances Immune Responses to B Cell Epitopes of the Protein Antigen LDH-C₄.* In **Peptides 1992**, (C.H. Schneider and A.N. Eberle, Eds.) pp 866-.
- Kaumaya, P.T.P.**, Kobs-Conrad, S., Seo, Y.H. and DiGeorge, A.M. (1993) *Template Vaccine Strategy Bypasses Haplotype Restricted Immune Resp.* In **Peptides 1992.**, (C.H. Schneider and A.N. Eberle, Eds.) pp139-141.
- Kaumaya, P.T.P.**, Seo, Y.H., Kobs, S., Ngua, I., Sheridan, J. and Stevens, V. (1993) *Peptide vaccines incorporating a "promiscuous" T cell epitope bypass certain haplotype restricted immune responses and provide broad spectrum immunogenicity.* **J. Molec. Recog.** 6, 81-94.
- Srinivasan, M., Domanico, S.Z., **Kaumaya, P.T.P.**, Pierce, S.K. (1993) *Peptides of twenty residues or greater are required to stimulate a high affinity MHC-class II restricted T cell response to Cytochrome c.* **Eur. J. Immunol.**, 23, 1011-1016.
- Kobs-Conrad, S., Lee, H., DiGeorge, A.M. and **Kaumaya, P.T.P.** (1993) *Engineered Topographic Determinants with ab, bab, and baba Topologies show High Affinity Binding to Native Protein Antigen LDH-C₄.* **J. Biol. Chem.**, 268, 25285-25295.
- Kaumaya, P.T.P.**, Kobs-Conrad, S., DiGeorge, A.M. and Stevens, V. (1994) *Denovo Engineering of Protein Immunogenic & Antigenic Determinants.* In **Peptides: Design, synthesis and Biology.**, (Anantharamaiah, G.M. and Basava, C., Eds.) Springer-Verlag, 9, 133-164.
- Kaumaya, P.T.P.** (1994) *A Conceptual Framework Model of Peptide Vaccine Engineering for Eliciting Humoral Protein Research Foundation, Osaka, 1994, 369-372.*
- Kaumaya, P.T.P.**, DiGeorge, A.M. and Conrad, S.F. (1995) *Evaluation of Co-Immunization strategies with Promiscuous T-cell epitopes for MHC-restricted T cell dependent antibody responses.* In **Peptides 1994** (Maia, H., Ed.) Escom, Leiden pp 120-121
- Conrad, S.F., Byeon, I.L., DiGeorge, A.M., Lairmore, M.D., Tsai, M. and **Kaumaya, P.T.P.** (1995) Immunogenicity and Conformational Properties of an N-linked Glycosylated Peptide of Human T-Lymphotropic Virus Type 1. **Biomedical Peptides, Proteins and Nucleic Acids**, 1, 83-92.
- Conrad, S., Eiden, J.S., Chung E.A.L., DiGeorge, A.M., Powell, J.E., Stevens, V.S. and **Kaumaya, P.T.P.** (1995) *Folding and Immunogenicity of Zinc-Finger Peptide Constructs corresponding to Loop Regions of the Protein Antigens LDH-C₄ and b-HCG.* **Letters in Peptide Science**, 1 (1994) 179-196.

Principal Investigator/Program Director (Last, First, Middle):

- Lairmore, M.D., DiGeorge, A.M., Conrad, S.F., Trevino, A. and **Kaumaya, P.T.P. (1995)** HTLV-I Peptides Constructs incorporating Promiscuous T cell epitopes overcome genetic restriction, elicit neutralizing antibodies and T cell help. **J. Virol.**,**69** (10),6077-6089
- Lairmore, M.D., Lal, R.B. and **Kaumaya, P.T.P. (1995)** Evaluation of Immunodominant Epitopes of Human T-Lymphotropic Virus Type 1 (HTLV-I) using Synthetic Peptides. **Biomedical Peptides, Proteins and Nucleic Acids**, 1 (3),117-122.
- Triozzi, P.L., Stoner, G.D. and **Kaumaya, P.T.P. (1995)** Subunit Peptide Cancer Vaccines Targeting Activating Mutations of the p21 Ras Proto-oncogene. **Biomedical Peptides, Proteins and Nucleic Acids**, 1 (3), pp185-198
- Kaumaya, P.T.P.**, Conrad, S.F., DiGeorge, A.M., and Lairmore, M.D. (1995) Glycosylation-Dependent Peptide Antigenic Determinants of env gp46 HTLV-I. **Leukemia** 9,Suppl. 1, S133-S138.
- Kaumaya, P.T.P.** (1 Conrad, S.F. and **Kaumaya, P.T.P. (1996)** Positional and Sequence-Dependent Problems in the Synthesis of Biotinylated Phosphotyrosine Peptides. In **Peptides: Chemistry, Structure and Biology**, (Kaumaya, P.T.P. and Hodges, R.S. Eds.), 181, 446. Mayflower Scientific Ltd., UK
- Conrad, S. F., Byeon, I. L., DiGeorge, A. M., Lairmore, M. L., Tsai, M., and **Kaumaya, P. T. P. (1996)** Effects of Glycosylation of a Peptide Epitope from HTLV-I gp46 on Structure and Immunogenicity. In **Peptides: Chemistry, Structure and Biology**, (Kaumaya, P.T.P. and Hodges, R.S. Eds.),
- Kaumaya, P.T.P.** Synthetic Peptide Vaccines: Dream or Reality. In **Peptides in Immunology** (Schneider, C.H., Ed.) Wiley and Sons, Ltd., pp. 117-148 448, Mayflower Scientific Ltd. UK
- Woodbine, D.B., Conrad, S., DiGeorge, A.M. and **Kaumaya, P.T.P. (1996)** Positioning of Promiscuous T Cell Epitopes on a Single Matrix, Multicomponent Combination Vaccine in Elucidation of MHC-Unrestricted Responses. In **Peptides: Chemistry, Structure and Biology**, (Kaumaya, P.T.P. and Hodges, R.S. Eds.), 321, 770., Mayflower Scientific Ltd., UK.
- Woodbine, D.B., Aldrich, W., Triozzi, P., Stevens, V. and **Kaumaya, P.T.P. (1996)** Peptide Vaccine Strategy for Immunotherapy of Human Breast Cancer Using HER-2/neu Oncogene. In **Peptides: Chemistry, Structure and Biology**, (Kaumaya, P.T.P. and Hodges, R.S. Eds.), 355, 841., Mayflower Scientific Ltd., UK.
- Triozzi, P.L., Stoner, G.D. and **Kaumaya, P.T.P. (1996)** Enhanced Immunogenicity of Engineered Chimeric Oligopeptides Corresponding to Activating Mutations of the p21 ras Proto-Oncogene. In **Peptides: Chemistry, Structure and Biology**,(Kaumaya, P.T.P. and Hodges, R.S. Eds.), 316, 755., Mayflower Scientific Ltd., UK.
- Bakaletz, L.O., **Kaumaya, P.T.P.**, Leake, E, Billy, J. and Murwin, D. (1996) An Investigation of the Relative Efficacy of Two Conjugated Synthetic Fimbrin Peptides as Immunogens Against Otitis Media in a Chinchilla Model. In **Peptides: Chemistry, Structure and Biology**, (Kaumaya, P.T.P. and Hodges, R.S. Eds.),325, 778., Mayflower Scientific Ltd., UK.
- Cervigni, S.E., Dumy, P., **Kaumaya, P.T.P.**, Mathieu, M., Nyanguile, O., Peggion, C., Razaname, A., Tuchscherer, and Mutter, M. (1996) Template-assisted Protein Design: Chimeric TASP by Chemoselective Ligation. In **Peptides: Chemistry, Structure and Biology**, (Kaumaya, P.T.P. and Hodges, R.S. Eds.), 228, 555., Mayflower Scientific Ltd., UK.
- Bakaletz, L. O., Leake, E. R., Billy, J. M., and **Kaumaya, P. T. P. (1997)** Relative Immunogenicity and Efficacy of Two Synthetic Chimeric Peptides of Fimbrin as Vaccinogens against Nasopharyngeal Colonization by Nontypeable Haemophilus Influenzae in the Chinchilla. **Vaccine** 15 (9), 955-961
- Wilmer, W. A., **Kaumaya, P.T.P.** Ember, J. A., and Cosio, F. G. (1998) Receptors for the Anaphylatoxin C5a (CD88) on Human Mesangial Cells. **Journal of Immunology**, 160 (11), 5646-52
- Frangione, M., Schwendeman., and Kaumaya, P. T. P. (1999) Delivery of Peptide Epitopes for HTLV-I Using Biodegradable Microspheres. In **Peptides: Chemistry, Structure and Biology**, (Tam, J. P., Kaumaya, P. T. P., Eds.) ,Kluwer Acad. Publishers, The Netherlands. Pp 799
- Frangione, M., and **Kaumaya, P. T. P. (1999)** Characterization and Immune Response of a Novel Synthetic Peptide Vaccine for HTLV-I. In **Peptides: Chemistry, Structure and Biology**, (Tam, J. P., and Kaumaya, P. T. P., Eds.), Kluwer Acad. Publishers, The Netherlands. Pp785.
- Woodbine, D. B., Dakappagari, N., B., Triozzi, P., Stevens., **Kaumaya, P. T. P. (1999)** Biological Effects of Peptide Antibodies raised to HER-2/neu. Implications for Therapy of Human Breast Cancer . In **Peptides: Chemistry, Structure and Biology** (Tam, J. P., and Kaumaya, P. T. P., Eds.), Kluwer Academic Publishers, The Netherlands. PP 799.
- Frangione, M. Lairmore, D., M, **Kaumaya, P.T.P. (2000)** Immune Response to a Conformational Peptide Vaccine for HTLV-I. In Peptides for the new Millennium (Eds. Fields, G.B. Tam T.P. and Barany.G.) Kluwer Academic Publishers, Dordrecht, Netherlands. PP 704
- Dakappagari, N.K., Douglas, D.B., Triozzi, P.L., Stevens, V.C., and **Kaumaya, P.T.P. (2000)** Prevention of Mammary Tumors with a Chimeric HER-2 B-cell Epitope Peptide Vaccine. **Cancer Research** 60, 3782-3789
- Kaumaya, P. T. P., (1999)** Immune Responses Induced by Chimeric Synthetic Peptide Vaccines linked to Biodegradable Microspheres. In **Peptides: Chemistry, Structure and Biology**, (Tam, J. P., and Kaumaya, P. T. P., Eds.), Kluwer Academic Publishers, The Netherlands.

Principal Investigator/Program Director (Last, First, Middle):

- Mythily Srinivasan, Ingrid E. Gienapp, Connie J. Rogers, Caroline C. Whitacre, and Pravin T.P. Kaumaya, (2001) *Costimulatory Blockade by CD28 Peptide Mimics: Suppression of Experimental Autoimmune Encephalomyelitis*. In **Peptides: The Wave of the Future** (Eds Houghten R.A and Lebl, M) Kluwer Academic Publisher, Dordrecht, Netherlands. Pp 654
- Roshni Sundaram, Christopher M Walker, and Pravin T.P. Kaumaya, (2001) Evaluation of HTLV-1 Cytotoxic T-cell Epitopes in HLA-A2.1 Transgenic Mice. In **Peptides: The Wave of the Future** (Eds Houghten R.A and Lebl, M) Kluwer Academic Publisher, Dordrecht, Netherlands. Pp 1008
- Pravin T.P. Kaumaya**, John Pyles and Naveen Dakappagari (2001) A combination of HER-2 peptide epitope vaccines mediate superior biological effects. In **Peptides: The Wave of the Future** (Eds Houghten R.A and Lebl, M) Kluwer Acad. Publisher, Dordrecht, Netherlands. Pp 1004
- Frangione, M., Albretch, B., Dakappagari, N., Rose, T., Brooks, C.L., Schwendeman, S.P., Lairmore, M.D., and **Kaumaya, P.T.P.** (2001) *Enhanced Immunogenicity of a Conformational Epitope of Human T-Lymphotropic Virus Type 1 using a Novel Chimeric Peptide*. **Vaccine** 19, 1068-1081
- Naveen Dakappagari, Robin Parihar, John Pyles, William E. Carson and **Pravin T. P. Kaumaya** (2001) Evaluation of synergistic interaction between cytokines and peptide epitope vaccines in protection against HER-2 expressing lung metastases. In **Peptides: The Wave of the Future** (Eds Houghten R.A and Lebl, M) Kluwer Academic Publisher, Dordrecht, Netherlands. Pp 1012
- Roshni Sundaram and **Pravin T.P. Kaumaya.** (2001) Multivalent Vaccine Studies for HTLV-1 Associated Diseases. In **Peptides: The Wave of the Future** (Eds Houghten R.A and Lebl, M) Kluwer Academic Publisher, Dordrecht, Netherlands. Pp 1006
- Kaumaya, P.T.P.** Pyles, J. and Dakappagari, N.K., Novel Multi-Epitope Cancer Vaccine Strategy Targeting HER-2 Elicits Enhanced Anti-tumor Antibody Responses. (2002) In *Epton R. (Ed.), Innovation and Perspectives in Solid Phase Synthesis and Combinatorial Libraries (Seventh International Symposium, Southampton, 2001)*, Mayflower Worldwide Ltd., Kingswinford, U.K., 2003, Ch. 30, pp 143, 144
- Srinivasan, M., Jiang, H., Gienapp, I.E., Stuckman, S.S., Rogers, C.J., **Kaumaya, P.T.P.**, and Whitacre, C.C. (2002) Blockade of CD28 by a retro-inverso peptide mimic of the CD28 CDR3 like region both prevents and suppresses EAE. **J. Immunol** 169: (4) 2180-2188
- Sundaram, R., Dakappagari., and Pravin T.P. Kaumaya. (2002) *Synthetic Peptides as Cancer Vaccine*. **Biopolymers** 66 (3),200-216
- Dakappagari, N., Parihar,R., J.Pyles, W.E. Carson, and Pravin T.P. Kaumaya. (2003) *A Chimeric Multi HER-2 B cell epitope Peptide Vaccine mediates Superior Anti-tumor Responses*. **J. Immunol.** 170:4242-4253
- Sundaram, R, Yiping Sun, C.Walker, F.A.Lemonnier, S.Jacobson, and **Pravin T.P. Kaumaya.** (2003) A Novel HTLV-1 Epitope CTL Peptide Construct Elicits Robust Cellular Immune Responses in HLA-A*0201 Transgenic β_2 M, D^b Double Knockout Mice. **Vaccine** 21, 2767-2781
- Utano Tomaru, Yoshihisa Yamano, Masahiro Nagai, Dragan Maric, **Pravin T. P Kaumaya**, William Biddison, and Steven Jacobson. (2003) *Acquisition of Peptide/HLA-GFP Complexes by Virus-Specific T Cells Differentiate Stages of T Cell Maturation Associated with The Outcome of Chronic Viral Infections*. **Nature Medicine** 9(4), 469-475.
- Sundaram, R., Beebe, M., and Kaumaya, P.T.P. (2004) Structural and Immunogenicity analysis of chimeric B-cell epitope constructs derived from gp46 and gp21 subunits of the env glycoproteins of HTLV-1. **J. Peptide Res.**, 63, 132-140
- Roshni Sundaram, Sharad V. Rawale, Yiping Sun and **Pravin T. P. Kaumaya.** (2004) *Design of Novel Template Peptides to Mimic the Coiled Coil Conformation of the gp21 Envelope Subunit of HTLV-1 for the Induction of Neutralizing Antibodies*. In **Peptide Revolution: Genomics, Proteomics & Therapeutics** (Eds. Chorev, M. and Sawyer, T.) American Peptide Society, Kluwer Academic Publishers, Dordrecht, The Netherlands, Pp407
- Stephanie D. Allen, Heike Bernert, Sharad V. Rawale, Anne M. VanBuskirk and **Pravin T. P. Kaumaya.** (2004) *Novel Peptide Therapeutic Approaches for Immune Tolerance*. In **Peptide Revolution: Genomics, Proteomics & Therapeutics** (Eds. Chorev, M. and Sawyer, T.) American Peptide Society, Kluwer Academic Publishers, Dordrecht, The Netherlands, Pp760
- Stephanie D. Allen, Sharad V. Rawale, Caroline C. Whitacre and **Pravin T. P. Kaumaya.** (2004) *Peptide Strategies for Suppression of EAE*. In **Peptide Revolution: Genomics, Proteomics & Therapeutics** (Eds. Chorev, M. and Sawyer, T.) American Peptide Society, Kluwer Academic Publishers, Dordrecht, The Netherlands, Pp947
- Kenneth D. Lute, Naveen Dakappagari, Sharad Rawale and **Pravin T. P. Kaumaya.** (2004). *Introduction of Disulfide Bond Pairing into a HER-2 B-Cell Epitope Improves Tumor Cell Binding and Antitumor Activities of Peptide Antibodies*. In **Peptide Revolution: Genomics, Proteomics & Therapeutics** (Eds. Chorev, M. and Sawyer, T.) American Peptide Society, Kluwer Academic Publishers, Dordrecht, The Netherlands, Pp 972
- Roshni Sundaram, Sharad V. Rawale, Naveen Dakappagari, Donn Young, Christopher M. Walker, Steven Jacobson and **Pravin T. P. Kaumaya.** (2004) *Induction of Protective CTL Responses in HLA-A*0201 Transgenic Mice Against HTLV-1 Recombinant Vaccinia Virus Using a Multivalent CTL Epitope Peptide Construct*. In **Peptide Revolution: Genomics, Proteomics & Therapeutics** (Eds. Chorev, M. and Sawyer, T.) American Peptide Society, Kluwer Academic Publishers, Dordrecht, The Netherlands, Pp 983

Principal Investigator/Program Director (Last, First, Middle):

Naveen K. Dakappagari, Roshni Sundaram, Sharad Rawale, and **Pravin T. P. Kaumaya.** (2004) *Synthetic Peptide Vaccine Strategies for the Enhancement of Cytotoxic T-Cell Responses.* In **Peptide Revolution: Genomics, Proteomics & Therapeutics** (Eds. Chorev, M. and Sawyer, T.) American Peptide Society, Kluwer Academic Publishers, Dordrecht, The Netherlands, Pp 989

Roshni Sundaram, Marcus P. Lynch, Sharad V. Rawale, Yiping Sun, Merdud Kazanji and **Pravin T.P. Kaumaya.** (2004) *Denovo Design of Peptide Immunogens that Mimic the Coiled Coil Region of Human T-cell Leukemia Virus Type-1 gp21 Transmembrane Subunit for Induction of Native Protein Reactive Neutralizing Antibodies.* **J. Biol Chem., April 1, Epub ahead of Print**; **279** (23) 24141-24151

Roshni Sundaram, Sharad Rawale, Naveen Dakappagari, Donn Young, Christopher M Walker, Francois Lemonnier, Steven Jacobson and Pravin T.P. Kaumaya. (2004) *Protective Efficacy of Multiepitope HLA-A*0201 restricted CTL Peptide construct against challenge with HTLV-1 TAX recombinant vaccinia virus.* **J. Acquir. Immune Defic. Syndr.** 37 (3), 1329-1339

Naveen K. Dakappagari, Roshni Sundaram, Sharad Rawale, Adrienne Liner, Darrell R. Galloway and Pravin T. P. Kaumaya., (2005) *Intracellular Delivery of a Novel Her-2/neu Multiepitope Peptide Vaccine by an Amphipathic Peptide Carrier Enhances Cytotoxic T Cell Responses in HLA-A201 Mice.* **J.Pept Res. (manuscript in press)**

Naveen K. Dakappagari, Kenneth D. Lute, Sharad Rawale, Joan T. Steele, Stephanie D. Allen, Gary Phillips, R. Todd Reilly, and Pravin T.P. (2005) Kaumaya. *Conformational HER-2/neu B-Cell Epitope Peptide Vaccine Designed to Incorporate Two Native Disulfide Bonds Enhances Tumor Cell Binding and Antitumor Activities.* **J.Biol Chem (Epub ahead of Print October 26, 2004).** 280(1),54-63

M. Lynch, S. Jacobson and P.T.P. Kaumaya (2005). *The immunogenicity and protective efficacy of a vaccine incorporating a chimeric B-cell epitope gp46, and gp 21 in squirrel monkeys (Saimiri sciureus).* **Manuscript in preparation**

S. Allen, C. Whitacre and P.T.P. Kaumaya (2005) *Costimulatory molecules and Peptidomimetics.* **J. Pept. Res** (invited review)

M. Lynch and P.T.P.Kaumaya, (2005) *Therapeutic Vaccines for HTLV-1.* *Current Protein and Peptide Sciences* (invited Review)

Research Projects Ongoing or Completed During the Last 3 Years

1. 1R01 AI40302-06 Kaumaya (PI) 04/01/97-3/31/03 (no cost extension)

NIH

Structural and Conformational Aspects in Peptide Vaccines

The long range goal is to continue to focus our research efforts on the HTLV-1 *env* and *tax* proteins as important targets of both humoral and cell-mediated immune responses against HTLV-1 infection. We propose to exploit these combined approaches to provide structural detail and to define conformationally dependent protective epitopes of selected human T-lymphotropic virus type 1 (HTLV-1) envelope (*env*) and transactivator (*tax*) proteins. We propose to develop effective, non-toxic adjuvant systems and adjuvant-free approaches. This multidisciplinary approach should yield a candidate vaccine for testing its immunoprotective nature

Role: PI

2. 1 R21 CA82869-01 Kaumaya, P (co-PI) 07/01/99-06/30/04

NCI

Chimeric HER-2 Chimeric Peptide Vaccine NCI (PA-98-042) R21 Phase 1b Clinical Trial

Phase 1b Clinical Trial of Chimeric Peptide targeting HER. The goal is to define toxicity, determine biologic dose in cancer patients with metastatic cancers, and testing of immunogenicity.

Role: Co-Investigator

3. 1R01 CA 84356-01A1 Kaumaya (PI) 04/17/00-06/30/05

NIH/NCI

Chimeric and Multivalent HER-2 Cancer Vaccine Strategies

The long range goal is develop novel and innovative approaches to antigen specific vaccination targeting the HER-2 extracellular domains and to elucidate the underlining mechanisms of anti-tumor effects elicited by peptide vaccines against a self protein and to suggest an immunization strategy that might be effective in human cancer vaccines

Role: PI

4. AI49875-01 Kaumaya (PI) 07/01/2001-06/30/05.

NIH 1R21

Novel Peptide Therapeutic Approaches for Immune Tolerance

Principal Investigator/Program Director (Last, First, Middle):

The objective of this proposal is to develop a widely applicable blockade strategy targeting co-stimulatory molecules and to elucidate the underlying mechanism of downregulating immune responses. Novel immunotherapeutic strategies for development of antigen specific tolerance of transplants
Role: PI

5. RFA PA-00-047-Quick Trials for Novel Cancer Therapies Kaumaya (PI) 07/01/2002-08/31/2004

NCI

Phase Ib Active Immunotherapy with HER-2 Multi-epitope Vaccine

The overall objective of this proposal is to test a multi-epitope combination vaccine targeting the HER-2/neu proto-oncogene. The main objective is to assess immunological response, safety and toxicity in patients with confirmed metastatic and/or recurrent cancer for which there is no therapy to improve survival.