

BIOGRAPHICAL SKETCHName: **Paul Viktor Lehmann, M.D., Ph.D.**Position title: **CEO of CTL, Adj. Prof. Pathol. & Neurol. at CWRU**

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A. Education and Training:

INSTITUTION AND LOCATION	DEGREE	DATE	FIELD OF STUDY
Gymnasium Kastl, Kastl, Oberpfalz, Germany	B.A.	1976	Arts and Sciences
Medical School, Univ. of Tübingen, Germany	M.D.	1983	Medicine
Doctoral thesis, "Immune regulation by lipoproteins" Internal Medicine, Univ. of Tübingen, Germany	Ph.D.	1988	Immunology

B. Personal Statement:

My entire research career revolved around immune monitoring. Initially I pursued this field entirely in the academic setting. In 1998 I founded a company around immune monitoring, CTL. At CTL we have been continuously refining methods, reagents and instrumentation for improving the ability to reliably detect rare antigen-specific T cells in freshly isolated cell material, such as human blood. Not only have we been offering new developments to the scientific community, but we also have been the first ones to apply them in research, continuing to further the field. I personally have been trying to combine my new role as the head of a company that employs over 200 in the meantime, with directing research in our R&D department, and continued academic productivity in this field.

C. Positions:

1986-1989 **Postdoctoral Scholar in Immunology** at Preclinical Research, Sandoz Ltd.,
 1989-1993 **Senior Postdoctoral Scholar in Immunology** at (UCLA) with Dr. Eli E. Sercarz.
 1993-1998 **Assistant Professor**, (CWRU), Dept. of Pathology & Neurology, Cleveland, OH.
 1998-2002 **Associate Professor, Tenure** (CWRU), Dept. of Pathology & Neurology, Cleveland, OH.
 2002-2008 **Full Professor with Tenure**, CWRU
 2008-Present **CEO of CTL, Adjunct Professor** at CWRU

D. Peer-reviewed Publications ([Google Scholar](#): h-index 54, 303 publications, 15,144 citations):

- Adorini L, Muller S, Cardinaux F, Lehmann PV, Falcioni F, Nagy ZA. *In vivo competition between self peptides and foreign antigens in T cell activation.* **Nature**, 1988, 334, 623-625. ([Link](#))
- Adorini L, Sette A, Buus S, Grey HM, Darsley M, Lehmann PV, Doria G, Nagy ZA, Appella E. *Interaction of an immunodominant epitope with Ia molecules in T cell activation.* **Proc. Natl. Acad. Sci. U.S.A.**, 1988, 85, 5181-5. ([Link](#))
- Lehmann PV, Cardinaux F, Appella E, Muller S, Falcioni F, Adorini L, Nagy ZA. *Inhibition of T cell response with peptides is influenced by both peptide-binding specificity of major histocompatibility complex molecules and susceptibility of T cells to blocking.* **Eur. J. Immunol.**, 1989, 19, 1071-1077. ([Link](#))
- Nagy ZA, Lehmann PV, Falcioni F, Muller S, Adorini L. *Why peptides? Their possible role in the evolution of MHC-restricted T cell recognition.* **Immunol. Today**, 1989, 10, 132-138. ([Link](#))
- Falcioni F, Dembic Z, Muller S, Lehmann PV, Nagy ZA. *Flexibility of the T cell repertoire. Self tolerance causes a shift of T cell receptor gene usage in response to insulin.* **J. Exp. Med.**, 1990, 171, 1665-1681. ([Link](#))
- Lehmann PV, Schumm G, Moon D, Hurtenbach U, Falcioni F, Muller S, Nagy ZA. *Acute lethal graft-versus-host reaction induced by major histocompatibility complex class II-reactive T helper cell clones.* **J. Exp. Med.**, 1990, 171, 1485-1496. ([Link](#))
- Tary-Lehmann M, Rolink AG, Lehmann PV, Nagy ZA, Hurtenbach U. *Induction of graft versus host-associated immunodeficiency by CD4+ T cell clones.* **J. Immunol.**, 1990, 145, 2092-2098. ([Link](#))
- Lehmann PV, Drexler K, Tary-Lehmann M, Falcioni F, Hurtenbach U, Nagy ZA. *Graft-versus-host resistance induced by class II major histocompatibility complex-specific T cell clones.* **J. Exp. Med.**, 1991, 173, 333-341. ([Link](#))
- Lehmann PV, Forsthuber T, Miller A, Sercarz EE. *Spreading of T cell autoimmunity to cryptic determinants of an autoantigen.* **Nature**, 1992, 358, 155-157. ([Link](#))
- Kaufman DL, Clare-Salzler M, Tian J, Forsthuber T, Ting GS, Robinson P, Atkinson MA, Sercarz EE, Tobin AJ, Lehmann PV. *Spontaneous Loss of T Cell Tolerance to Glutamic Acid Decarboxylase in Murine Insulin-dependent Diabetes.* **Nature**, 1993, 366, 69-72. ([Link](#))
- Lehmann PV, Sercarz EE, Forsthuber T, Dayan CM, Gammon G. *Determinant spreading and the dynamics of the autoimmune T cell repertoire.* **Immunol. Today**, 1993, 14, 203-208. ([Link](#))

- Sercarz EE, Lehmann PV, Ametani A, Benichou G, Miller A, Moudgil K. *Dominance and crypticity of T cell antigenic determinants.* **Annu. Rev. Immunol.**, 1993, 11, 729-766. ([Link](#))
- Benichou G, Fedoseyeva E, Lehmann PV, Olson CA, Geysen HM, McMillan M, Sercarz EE. *Limited T cell response to donor MHC peptides during allograft rejection. Implications for selective immune therapy in transplantation.* **J. Immunol.**, 1994, 153, 938-945. ([Link](#))
- Bhardwaj V, Kumar V, Grewal IS, Dao T, Lehmann PV, Geysen HM, Sercarz EE. *T cell determinant structure of myelin basic protein in B10.PL, SJL/J, and their F1S.* **J. Immunol.**, 1994, 152, 3711-3719. ([Link](#))
- Tary-Lehmann M, Lehmann PV, Schols D, Roncarolo MG, Saxon A. *Anti-SCID mouse reactivity shapes the human CD4+ T cell repertoire in hu-PBL-SCID chimeras.* **J. Exp. Med.**, 1994, 180, 1817-1827. ([Link](#))
- Ransohoff R, Tuohy VK, Lehmann PV. *The immunology of multiple sclerosis: new intricacies and new insights.* **Curr. Opin. Neurol.**, 1994, 7, 242-249. ([Link](#))
- Tian J, Lehmann PV, Kaufman DL. *T cell cross-reactivity between coxsackievirus and glutamate decarboxylase is associated with a murine diabetes susceptibility allele.* **J. Exp. Med.**, 1994, 180, 1979-1984. ([Link](#))
- Tary-Lehmann M, Saxon A, Lehmann PV. *The human immune System in hu-PBL-SCID Mice.* **Immunol. Today**, 1995, 16, 529-533. ([Link](#))
- Forsthuber T, Yip HC, Lehmann PV. *Induction of TH1 and TH2 immunity in neonatal mice.* **Science**, 1996, 271, 1728-1730. ([Link](#))
- Le Grice SF, Whalen CC, Hom DL, Lehmann PV, Walker CJ. *Perspective: research highlights at the Case Western Reserve University Center for AIDS Research. Learning from the past and looking toward the future.* **AIDS Res. Hum. Retroviruses**, 1996, 12, 1659-1666. ([Link](#))
- Lehmann PV. *Immunomodulation by proteolytic enzymes.* **Nephrol. Dial. Transplant.**, 1996, 11, 952-955. ([Link](#))
- Tian J, Atkinson MA, Clare-Salzler M, Herschenfeld A, Forsthuber T, Lehmann PV, Kaufman DL. *Nasal administration of glutamate decarboxylase (GAD65) peptides induces Th2 responses and prevents murine insulin-dependent diabetes.* **J. Exp. Med.**, 1996, 183, 1561-1567. ([Link](#))
- Tian J, Clare-Salzler M, Herschenfeld A, Middleton B, Newman D, Mueller R, Arita S, Evans C, Atkinson MA, Mullen Y, Sarvetnick N, Tobin AJ, Lehmann PV, Kaufman DL. *Modulating autoimmune responses to GAD inhibits disease progression and prolongs islet graft survival in diabetes-prone mice.* **Nat. Med.**, 1996, 2, 1348-1353. ([Link](#))
- Lehmann PV. *Immunological tolerance.* **Science**, 1996, 272, 1404-1406. ([Link](#))
- Chu RS, Targoni OS, Krieg AM, Lehmann PV, Harding CV. *CpG oligodeoxynucleotides act as adjuvants that switch on T helper 1 (Th1) immunity.* **J. Exp. Med.**, 1997, 186, 1623-1631. ([Link](#))
- Lehmann PV, Matesic D, Benichou G, Heeger PS. *Induction of T helper 2 immunity to an immunodominant allopeptide.* **Transplantation**, 1997, 64, 292-296. ([Link](#))
- Tian J, Lehmann PV, Kaufman DL. *Determinant spreading of T helper cell 2 (Th2) responses to pancreatic islet autoantigens.* **J. Exp. Med.**, 1997, 186, 2039-2043. ([Link](#))
- Birnbaum G, Kotilinek L, Miller SD, Raine CS, Gao YL, Lehmann PV, Gupta RS. *Heat shock proteins and experimental autoimmune encephalomyelitis. II: environmental infection and extra-neuraxial inflammation alter the course of chronic relapsing encephalomyelitis.* **J. Neuroimmunol.**, 1998, 90, 149-161. ([Link](#))
- Lehmann PV. *The fate of T cells in the brain: veni, vidi, vici and veni, mori.* **Am. J. Pathol.**, 1998, 153, 677-680. ([Link](#))
- Lehmann PV, Targoni OS, Forsthuber TG. *Shifting T cell activation thresholds in autoimmunity and determinant spreading.* **Immunol. Rev.**, 1998, 164, 53-61. ([Link](#))
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- Targoni OS, Lehmann PV. *Endogenous myelin basic protein inactivates the high avidity T cell repertoire.* **J. Exp. Med.**, 1998, 187, 2055-2063. ([Link](#))
- Targoni OS, Tary-Lehmann M, Lehmann PV. *Prevention of murine EAE by oral hydrolytic enzyme treatment.* **J. Autoimmun.**, 1999, 12, 191-198. ([Link](#))
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- Hesse MD, Karulin AY, Boehm BO, Lehmann PV, Tary-Lehmann M. *A T cell clone's avidity is a function of its activation state. J. Immunol.*, 2001, 167, 1353-1361. ([Link](#))
- Targoni OS, Baus J, Hofstetter HH, Hesse MD, Karulin AY, Boehm BO, Forsthuber TG, Lehmann PV. *Frequencies of neuroantigen-specific T cells in the central nervous system versus the immune periphery during the course of experimental allergic encephalomyelitis. J. Immunol.*, 2001, 166, 4757-4764. ([Link](#))
- Anthony DD, Valdez H, Post AB, Carlson NL, Heeger PS, Lehmann PV. *Comprehensive determinant mapping of the hepatitis C-specific CD8 Cell Repertoire Reveals Unpredicted Immune Hierarchy. Clin. Immunol.*, 2002, 103, 264-276. ([Link](#))
- Karulin AY, Hesse MD, Yip HC, Lehmann PV. *Indirect IL-4 pathway in type 1 immunity. J. Immunol.*, 2002, 168, 545-553. ([Link](#))
- Meierhoff G, Ott PA, Lehmann PV, Schloot NC. *Cytokine detection by ELISPOT: relevance for immunological studies in type 1 diabetes. Diabetes Metab. Res. Rev.*, 2002, 18, 367-380. ([Link](#))
- Valdez H, Carlson NL, Post AB, Asaad R, Heeger PS, Lederman MM, Lehmann PV, Anthony DD. *HIV long-term non-progressors maintain brisk CD8 T cell responses to other viral antigens. AIDS*, 2002, 16, 1113-1118. ([Link](#))
- Anthony DD, Lehmann PV. *T cell epitope mapping using the ELISPOT approach. Methods*, 2003, 29, 260-269. ([Link](#))
- Eisenberg JC, Czinn SJ, Garhart CA, Redline RW, Bartholomae WC, Gottwein JM, Nedrud JG, Emancipator SE, Boehm BB, Lehmann PV, Blanchard TG. *Protective efficacy of anti-helicobacter pylori immunity following systemic immunization of neonatal mice. Infect. Immun.*, 2003, 71, 1820-1827. ([Link](#))
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- Ott PA, Dittrich MT, Herzog BA, Guerkov R, Gottlieb PA, Putnam AL, Durinovic-Bello I, Boehm BO, Tary-Lehmann M, Lehmann PV. *T cells recognize multiple GAD65 and proinsulin epitopes in human type 1 diabetes, suggesting determinant spreading.* **J. Clin. Immunol.**, 2004, 24, 327-339. ([Link](#))
- Berner BR, Tary-Lehmann M, Yonkers NL, Askari AD, Lehmann PV, Anthony DD. *Phenotypic and functional analysis of EBV-specific memory CD8 cells in SLE.* **Cell. Immunol.**, 2005, 235, 29-38. ([Link](#))
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- Hofstetter HH, Karulin AY, Forsthuber TG, Ott PA, Tary-Lehmann M, Lehmann PV. *The cytokine signature of MOG-specific CD4 cells in the EAE of C57BL/6 mice.* **J. Neuroimmunol.**, 2005, 170, 105-14. ([Link](#))
- Hofstetter HH, Targoni OS, Karulin AY, Forsthuber TG, Tary-Lehmann M, Lehmann PV. *Does the frequency and avidity spectrum of the neuroantigen-specific T cells in the blood mirror the autoimmune process in the central nervous system of mice undergoing experimental allergic encephalomyelitis?* **J. Immunol.**, 2005, 174, 4598-605. ([Link](#))
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- Ott PA, Herzog BA, Quast S, Hofstetter HH, Boehm BO, Tary-Lehmann M, Durinovic-Bello I, Berner BR, Lehmann PV. *Islet-cell antigen-reactive T cells show different expansion rates and Th1/Th2 differentiation in type 1 diabetic patients and healthy controls.* **Clin. Immunol.**, 2005, 115, 102-14. ([Link](#))
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- Ott PA, Tary-Lehmann M, Lehmann PV. *The Secretory IFN- γ response of single CD4 memory cells after activation on different antigen-presenting cell types.* **Clin. Immunol.**, 2007, 124, 267-276. ([Link](#))
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- Kuerten S, Javeri S, Tary-Lehmann M, Lehmann PV, Angelov DN. *Fundamental differences in the dynamics of CNS lesion development and composition in MP4- and MOG peptide 35-55-induced experimental autoimmune encephalomyelitis.* **Clin. Immunol.**, 2008, 129, 256-267. ([Link](#))
- Tary-Lehmann M, Hamm CD, Lehmann PV. *Validation of cell-based assays in the GLP setting.* Edited by Uma Prabhakar and Marian Kelley. **Chapter: Validating reference samples for comparison in a regulated ELISPOT assay.** 2008. ISBN: 97804700287662008. ([Link](#))
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