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THEODORE L. STECK, M.D.

Curriculum Vitae

BIRTH: May 3, 1939

MARITAL STATUS: Wife: Yvonne Lange. Children: David and Oliver (prior marriage).

EDUCATION:

1956-60 B.S. Lawrence College, Appleton, WI
1960-64 M.D. Harvard Medical School, Boston, MA

APPOINTMENTS:

1964-65 Intern in Medicine, Beth Israel Hospital, Boston, MA
1965-66 Research Fellow in Medicine, Harvard Medical School
1966-68 Research Associate, National Cancer Institute, Bethesda, MD
1968-70 Research Fellow in Biological Chemistry, Harvard Medical School, Boston

Key faculty appointments at the University of Chicago:

1970-73 Assistant Professor of Medicine
1973-74 Assistant Professor of Biochemistry
1974-77 Associate Professor of Biochemistry
1977-84 Professor of Biochemistry
1979-84 Chair, Department of Biochemistry
1984- Professor of Biochemistry and Molecular Biology
1993-07 Chair, Undergraduate Environmental Studies Program

Joint appointments along the way:

Departments of Medicine; Molecular Genetics and Cell Biology;
The Committee on Cell Physiology; and The College

EDITORIAL BOARDS:

1972-81 Journal of Supramolecular Structure
1975-77 Journal of Cell Biology
1978-82 Journal of Biological Chemistry
1986-91 Journal of Biological Chemistry

EXTRAMURAL SERVICE:

1966-68 Surgeon, USPHS, NIH, Bethesda, Maryland
1975-78 Member of Advisory Committee on Biochemistry and
Chemical Carcinogenesis, American Cancer Society
1984-86 Research Council, New York Heart Association
1984-88 Board of Scientific Counselors, NHLBI, NIH

- 1986-89 Council for Research and Clinical Investigation Awards,
American Cancer Society
- 1995-00 Advisory Board, Canadian Institute for Advanced Research,
Soft Surfaces and Interfaces Program
- 2006- Board of Directors, Population Connection (*Zero Population Growth*)

SOCIETY MEMBERSHIP:

- 1973- American Society for Biological Chemistry and Molecular Biology

DISTINCTIONS:

- 1960 Phi Beta Kappa, Summa Cum Laude, Lawrence College
- 1971-74 Schweppe Foundation Fellowship (Junior Faculty Award)
- 1976-80 Faculty Research Awardee, American Cancer Society
- 1983-86 Publications Committee, Journal of Biological Chemistry
- 1988-90 ASBMB Awards Committee
- 1989-91 ASBMB Nominating Committee
- 1989 Robert A. Welch Foundation Lecturer
- 1990-93 Councilor, Amer. Soc. Biochemistry & Molecular Biology
- 2001 Honorary Doctor of Science, Lawrence University, Appleton, WI

RESEARCH INTERESTS:

Red blood cell membrane biochemistry

Membrane cell biology in *Dictyostelium discoideum*

Cholesterol cell biology

U.S. PATENT: 10/599,898 (A pharmacologic method of lowering cholesterol production)

PUBLICATIONS

1. Rosenberg, R.M., Rogers, D.W., Haebig, J.E., and Steck, T.L. 1962. The interaction of serum albumin with ethanol. *Arch. Biochem. and Biophys.* **97**: 433-441.
2. Wallach, D.F.H. and Steck, T.L. 1963. Fluorescence techniques in the microdetermination of metals in biological materials. I. Utility of 2,4-bis-[N,N'-di-(carboxymethyl)aminomethyl] fluorescein in the fluorometric estimation of Al^{+3} , alkaline earths, Co^{+2} , Cu^{+2} , Ni^{+2} , and Zn^{+2} in micromolar concentrations. *Anal. Chem.* **35**: 1035-1044.
3. Wallach, D.F.H. and Steck, T.L. 1963. Fluorescence techniques in the microdetermination of metals in biological materials. II. An improved method for direct complexometric titration of calcium in small serum samples. *Anal. Biochem.* **6**: 176-180.
4. Steck, T.L. and Wallach, D.F.H. 1965. The binding of kidney- bean phytohemagglutinin by Ehrlich ascites carcinoma. *Biochim. Biophys. Acta* **97**: 510-522.
5. Steck, T.L., Kaufman, S., and Bader, J.P. 1968. Glycolysis in chick embryo cell cultures transformed by Rous sarcoma virus. *Cancer Res.* **28**: 1611-1619.
6. Steck, T.L., Caicuts, M.J., and Wilson, R.G. 1968. The influence of divalent cations on the activity of the ribonucleic acid polymerase of *Micrococcus lysodeikticus*. *J. Biol. Chem.* **243**: 2769-2778.
7. London, W.P. and Steck, T.L. 1969. Kinetics of enzyme reactions with interaction between a substrate and a (metal) modifier. *Biochemistry* **8**: 1767-1779.
8. Steck, T.L., Nakata, Y., and Bader, J.P. 1969. The uptake of nucleosides by cells in culture. I. Inhibition by heterologous nucleosides. *Biochem. Biophys. Acta* **190**: 237-249.
9. Bader, J.P. and Steck, T.L. 1969. Analysis of the ribonucleic acid of murine leukemia virus. *J. Virol.* **4**: 454-459.
10. Bader, J.P., Steck, T.L., and Kakefuda, T. 1970. The structure of the RNA of RNA-containing tumor viruses. *Current Topics in Microbiol. and Immunol.* **51**: 105-113.
11. Wilson, R.G., Russo, J.F., and Steck, T.L. 1970. RNA synthesis: Divalent cation-related specificity in the initiation step. *Biochem. Biophys. Acta* **204**: 412-415.
12. Steck, T.L. and Wallach, D.F.H. The isolation of plasma membranes. 1970. In *Methods in Cancer Research* (H. Busch, Ed.) Academic Press, New York, Vol. **5**, pp. 93-153.
13. Steck, T.L. Weinstein, R.S., Straus, J.H., and Wallach, D.F.H. 1970. Inside-out red cell membrane vesicles: Preparation and purification. *Science* **168**: 255-257.
14. Steck, T.L., Straus, J.H., and Wallach, D.F.H. 1970. A model for the behavior of vesicles in density gradients: Implications for fractionation. *Biochim. Biophys. Acta* **203**: 385-393.
15. Fairbanks, G., Steck, T.L., and Wallach, D.F.H. 1971. Electrophoretic analysis of the major polypeptides of the human erythrocyte membrane. *Biochemistry*, **10**: 2606-2617.
16. Steck, T.L., Fairbanks, G., and Wallach, D.F.H. 1971. Disposition of the major proteins in the isolated erythrocyte membrane. Proteolytic dissection. *Biochemistry*, **10**: 2617-2624.

17. Steck, T.L. 1972. Selective solubilization of red cell membrane proteins with guanidine hydrochloride. *Biochem. Biophys. Acta.*, **255**: 553-556.
18. Steck, T.L. 1972. Cross-linking the major proteins of the isolated erythrocyte membrane. *J. Mol. Biol.*, **66**: 295-305.
19. Bader, J.P., Ray, D.A., and Steck, T.L. 1972. Electrophoretic determinations of hyaluronate produced by cells in culture. *Biochim. Biophys. Acta.*, **264**: 73-84.
20. Steck, T.L. and Kant, J.A. 1974. Preparation of impermeable ghosts and inside-out vesicles from human erythrocyte membranes. *Methods in Enzymology*, **31**: 172-180.
21. Steck, T.L. Organization of proteins in human erythrocyte membranes. In *Membrane Research* (C.F. Fox, Ed.) Academic Press, New York, 1972, pp. 71-93.
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23. Steck, T.L. Membrane isolation. In *Membrane Molecular Biology* (C.F. Fox and A.D. Keith, Eds.) Sinauer Assoc., Inc., Stamford, Conn., 1972, pp. 76-114.
24. Kant, J.A. and Steck, T.L. 1972. Cation-impermeable inside-out and right-side-out vesicles from human erythrocyte membranes. *Nature New Biology*, **240**: 26-28.
25. Steck, T.L. and Yu, J. 1973. Selective solubilization of proteins from red blood cell membranes by protein perturbants. *J. Supramol. Struct.*, **1**: 220-232.
26. Yu, J., Fischman, D.A., and Steck, T.L. 1973. Selective solubilization of proteins and phospholipids from red blood cell membranes by nonionic detergents. *J. Supramol. Structure*, **1**: 233-248.
27. Kant, J.A. and Steck, T.L. 1973. Adenosine 3',5' monophosphate binds only to the inner surface of human erythrocyte membranes. *Biochem. Biophys. Res. Commun.*, **54**: 116-122.
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29. Steck, T.L. Preparation of impermeable inside-out and right-side-out vesicles from erythrocyte membranes. In *Methods in Membrane Biology* (E.D. Korn, Ed.). Plenum Press, New York, 1974, Vol. **2**, pp. 245-281.
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35. Steck, T.L., Ramos, B., and Strapazon, E. 1976. Proteolytic dissection of band 3, the predominant transmembrane polypeptide of the human erythrocyte membrane. *Biochemistry*, **15**: 1154-1161.
36. Steck, T.L., Wackman, N., and Tarlov, A.R. 1976. The exchange of erythrocyte membrane phospholipids with rat liver extracts in vitro. *J. Supramol. Struct.*, **4**: 169-180.
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53. Weinstein, R.S., Khodadad, J.K., and Steck, T.L. The Band 3 protein intramembrane particle of the human red blood cell. In *Membrane Transport in Erythrocytes: Alfred Benzon Symposium 14* (U.V. Lassen, H.H. Ussing, and J.O. Wieth, Eds.) Munksgaard, Copenhagen, 1980, pp. 35-50.
54. Kliman, H.J. and Steck, T.L. Kinetic analysis of the association of glyceraldehyde 3-phosphate dehydrogenase with the human red cell membrane. In *Membrane Transport in Erythrocytes: Alfred Benzon Symposium 14* (U.V. Lassen, H.H. Ussing, and J.O. Wieth, Eds.) Munksgaard, Copenhagen, 1980, pp. 312-326.
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- 61A. Steck, T.L. 1981. The molecular anatomy of the human red blood cell membrane. In *Medicine in Transition* (Edward P. Cohen, Ed.), University of Illinois Press, Chicago, pp. 127-135.
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66. Lieber, M.R. and Steck, T.L. 1982. Dynamics of the holes in human erythrocyte membrane ghosts. *J. Biol. Chem.*, **257**: 11660-11666.
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71. Lange, Y. and Steck, T.L. 1984. Mechanism of red blood cell acanthocytosis and echinocytosis *in vivo*. *J. Membrane Biol.*, **77**: 153-159.
72. Lange, Y., Matthies, H., and Steck, T.L. 1984. Cholesterol oxidase susceptibility of the red cell membrane. *Biochim. Biophys. Acta*, **769**: 551-562.
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74. Jenkins, J., Madden, D.P., and Steck, T.L. 1984. Association of phosphofructokinase and aldolase with the membrane of the intact erythrocyte. *J. Biol. Chem.*, **259**: 9374-9378.
75. Shen, B.W., Josephs, R., and Steck, T.L. 1984. Ultrastructure of unit fragments of the skeleton of the human erythrocyte membrane. *J. Cell Biol.*, **99**: 810-821.
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