

Steven M. Truscott, Ph.D., DABCC, FADLM

Assistant Professor, Department of Pathology and Laboratory Medicine
Oakland University William Beaumont School of Medicine

Clinical Chemist and Technical Director
Chemistry, Special Chemistry and Toxicology
Corewell Health System
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ADDRESS

Corewell Health Willam Beaumont University Hospital (East)
Research Institute, 3rd Floor
3811 West Thirteen Mile Road
Royal Oak, MI 48073

EDUCATION AND TRAINING

- | | |
|-----------------|-------------------------------------------------------------------------------------------------------------------|
| 7/2010 – 6/2012 | Post-Doctoral Fellow, Immunology
National Institute of Health, Bethesda, MD |
| 2/2007 – 6/2010 | Post-Doctoral Fellow, Vaccine Development and Human Immunobiology
University of Pittsburgh, Pittsburgh, PA |
| 8/2006 – 1/2007 | Post-Doctoral Fellow, Clinical Chemistry
University of Louisville Hospital, Louisville, KY |
| 8/2000 – 8/2006 | Doctorate of Philosophy, Ph.D., Biology & Biomedical Sciences, Immunology
Washington University, St. Louis, MS |
| 2/2007 – 6/2010 | Bachelor of Science, Biochemistry, magna cum laude
Brigham Young University, Provo, UT |

PROFESSIONAL MEMBERSHIPS

- American Association of Clinical Chemistry Academy (AACC)
(formerly National Academy of Clinical Biochemistry)
- American Association of Clinical Chemistry (AACC)
Mass Spectrometry and Separation Sciences Division
- Association for Mass Spectrometry (MSACL)
- American Association of Clinical Chemistry (AACC)

PROFESSIONAL, ACADEMIC, ADMINISTRATIVE, AND CLINICAL POSITIONS

Academic Positions

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|------------------|--------------------------------------------------------------------------------------------------------------|
| 7/2018 – present | Medical School Application Screener
Oakland University William Beaumont School of Medicine, Rochester, MI |
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- 8/2014 – present Diagnostic Medicine M4 Clerkship
Unconscious Patient Module including toxicology, therapeutic drug management, and pharmacogenetics testing (one 2-hour interactive session each month during the academic year) Oakland University William Beaumont School of Medicine, Rochester, MI

- 1/2013 – present Biennial Lecture Series in Clinical Chemistry
(six 1-hour interactive sessions with residents), Pathology Residency Program
Corewell Health William Beaumont University Hospital, Royal Oak, MI

- 12/2012 – present Assistant Professor, Department of Pathology and Laboratory Medicine
Oakland University William Beaumont School of Medicine, Rochester, MI

- 9/2012 – present Didactic Discussions (1-2 hours, 3-5 times/month) with rotating fellows, residents, and medical students on clinical chemistry topics, including Special Chemistry, STAT Lab, and Point-of-Care, Toxicology, Pathology Residency Program and Chemical Pathology Fellowship Program
Corewell Health William Beaumont University Hospital, Royal Oak, MI

- 7/2011 – 6/2012 Clinical Chemistry Chief Fellow
Training and mentoring of PGY-1 pathology residents and junior chemistry fellow in each of the following:
(1) on-call responsibilities for clinical pathology,
(2) interpretation of serum and urine protein electrophoresis testing, and
(3) clinical chemistry topics
University of Louisville Hospital, Louisville, KY

- 9/2006 – 12/2006 Assistant Professor, Department of Pathology and Laboratory Medicine
Oakland University William Beaumont School of Medicine, Rochester, MI

- 9/2001 – 12/2001 Assistant Professor, Department of Pathology and Laboratory Medicine
Oakland University William Beaumont School of Medicine, Rochester, MI

- 9/1997 – 12/1997 Assistant Professor, Department of Pathology and Laboratory Medicine
Oakland University William Beaumont School of Medicine, Rochester, MI

- 7/1994 – 8/1996 Volunteer Full-Time Missionary
Ecclesiastical teaching and community service, Switzerland Zürich Mission
The Church of Jesus Christ of Latter-Day Saints

Clinical Positions

- 1/2019 – present System Technical Director, Department of Pathology
Chemistry, Special Chemistry, STAT Lab, Point-of-Care, Toxicology
Corewell Health William Beaumont University Hospital, Royal Oak, MI

- 1/2019 – present Chief Clinical Chemistry Fellow,
Department of Pathology and Laboratory Medicine
University of Louisville Hospital, University of Louisville School of Medicine,
Louisville, KY

- 8/2012 – present Clinical Chemist and Technical Director,
Special Testing, STAT Lab, Point-of-Care, Department of Pathology
Corewell Health William Beaumont University Hospital, Royal Oak, MI

RESEARCH

Ongoing

- 12/2015 – present Kampfrath T, **Truscott SM**. Plasma lactate stability in gray fluoride oxalate tubes does not require transport or storage at less than ambient temperature. Manuscript in preparation.
- 11/2012 – present Jolly B, **Truscott SM**. Novel technical approach to immunophenotype determination of an alkaline phosphatase macroenzyme complex in a patient serum. Manuscript in preparation.

INTELLECTUAL PROPERTY/PATENTS

United States Patent 8,992,937 B2 “Disulfide Trap MHC Class I Molecules and Uses Therefor” (March 31, 2015)

PUBLICATIONS

Peer-reviewed

Erickson JA, Nyborg AC, Johnson JL, **Truscott SM**, Gunn A, Nordmeyer FR, Watt GD. Enhanced efficiency of ATP hydrolysis during nitrogenase catalysis utilizing reductants that form the all-ferrous redox state of the Fe protein. *Biochemistry*. 1999 Oct 26;38(43):14279-85.

Nyborg AC, Erickson JA, Johnson JL, Gunn A, **Truscott SM**, Watt GD. Reactions of *Azotobacter vinelandii* nitrogenase using Ti(III) as reductant. *J Inorg Biochem*. 2000 Mar;78(4):371-81.

Thulin CD, Savage JR, McLaughlin JN, **Truscott SM**, Old WM, Ahn NG, Resing KA, Hamm HE, Bitensky MW, Willardson BM. Modulation of the G protein regulator phosphodiesterase by Ca²⁺/calmodulin-dependent protein kinase II phosphorylation and 14-3-3 protein binding. *J Biol Chem*. 2001 Jun 29;276(26):23805-15.

Miley MJ*, **Truscott SM***, Yu YY, Gilfillan S, Fremont DH, Hansen TH, Lybarger L. Biochemical features of the MHC-related protein 1 consistent with an immunological function. *J Immunol*. 2003 Jun 15;170(12):6090-8. *Equal author contribution

Lybarger L, Yu YY, Miley MJ, Fremont DH, Myers N, Primeau T, **Truscott SM**, Connolly JM, Hansen TH. Enhanced immune presentation of a single-chain major histocompatibility complex class I molecule engineered to optimize linkage of a C-terminally extended peptide. *J Biol Chem*. 2003 Jul 18;278(29):27105-11.

Robben PM, Mordue DG, **Truscott SM**, Takeda K, Akira S, Sibley LD. Production of IL-12 by macrophages infected with *Toxoplasma gondii* depends on the parasite genotype. *J Immunol*. 2004 Mar 15;172(6):3686-94.

Primeau T, Myers NB, Yu YY, Lybarger L, Wang X, **Truscott SM**, Hansen TH, Connolly JM. Applications of major histocompatibility complex class I molecules expressed as single chains. *Immunol Res*. 2005 Jun;32(1-3):109-22.

Chen M, Tabaczewski P, **Truscott SM**, Van Kaer L, Stroynowski I. Hepatocytes express abundant surface class I MHC and efficiently use transporter associated with antigen processing, tapasin, and

low molecular weight polypeptide proteasome subunit components of antigen processing and presentation pathway. *J Immunol.* 2005 Jul 15;175(2):1047-55.

Kim S, Poursine-Laurent J, **Truscott SM**, Lybarger L, Song YJ, Yang L, French AR, Sunwoo JB, Lemieux S, Hansen TH, Yokoyama WM. Licensing of natural killer cells by host major histocompatibility complex class I molecules. *Nature.* 2005 Aug 4;436(7051):709-13.

Truscott SM, Lybarger L, Martinko JM, Mitaksov VE, Kranz DM, Connolly JM, Fremont DH, Hansen TH. Disulfide bond engineering to trap peptides in the MHC class I binding groove. *J Immunol.* 2007 May 15;178(10):6280-9.

Mitaksov VE*, **Truscott SM***, Lybarger L, Connolly JM, Hansen TH, Fremont DH. Structural engineering of pMHC reagents for T cell vaccines and diagnostics. *Chem Biol.* 2007 Aug;14(8):909-22. *Equal author contribution

Truscott SM, Wang X, Lybarger L, Biddisio WE, McBerry C, Martinko JM, Connolly JM, Linette GP, Fremont DH, Hansen TH, Carreno BM. Human MHC class I molecules with disulfide traps secure disease-related antigenic peptides and exclude competitor peptides. *J Biol Chem.* 2008 Mar 21;283(12):7480-90. Epub 2008 Jan 14.

Saito K, Ait-Goughoulte M, **Truscott SM**, Meyer K, Blazevic A, Abate G, Ray RB, Hoft DF, Ray R. Hepatitis C virus inhibits cell surface expression of HLA-DR, prevents dendritic cell maturation and induces IL-10 production. *J Virol.* 2008 Apr;82(7):3320-8. Epub 2008 Jan 23.

Li L, Herndon JM, **Truscott SM**, Hansen TH, Fleming TP, Goedegebuure P, Gillanders WE. Engineering superior DNA vaccines: MHC class I single chain trimers bypass antigen processing and enhance the immune response to low affinity antigens. *Vaccine.* 2010 Feb 23;28(8):1911-8.

Truscott SM, Abate G, Price JD, Kemper C, Atkinson JP, Hoft DF. CD46 engagement on human CD4⁺ T cells produces T regulatory type 1-like regulation of antimycobacterial T cell responses. *Infect Immun.* 2010 Dec;78(12):5295-306. Epub 2010 Oct 4.

Hoft DF, Babusis E, Worku S, Spencer CT, Lottenbach K, **Truscott SM**, Abate G, Sakala IG, Edwards KM, Creech CB, Gerber MA, Bernstein DI, Newman F, Graham I, Anderson EL, Belshe RB. Live and inactivated influenza vaccines induce similar humoral responses, but only live vaccines induce diverse T-cell responses in young children. *J Infect Dis.* 2011 Sep;204(6):845-53. Epub 2011 Aug 15.

Chua WJ, **Truscott SM**, Eickhoff CS, Blazevic A, Hoft DF, Hansen TH. Polyclonal mucosa-associated invariant T cells have unique innate functions in bacterial infection. *Infect Immun.* 2012 Sep;80(9):3256-67. Epub 2012 Jul 9.

Spencer CT, Abate G, Sakala IG, Xia M, **Truscott SM**, Eickhoff CS, Linn R, Blazevic A, Metkar SS, Peng G, Froelich CJ, Hoft DF. Granzyme A Produced by $\gamma\delta_2$ T Cells Induces Human Macrophages to Inhibit Growth of an Intracellular Pathogen. *PLoS Pathog.* 2013; 9(1): e1003119. doi:10.1371/journal.ppat.1003119.

Truscott SM, Crittenden NE, Shaw MA, Middleberg RA, Jortani SA. Violent Behavior and Hallucination in a 32-Year Old Patient. *Clin Chem.* 2013 Apr;59(4):612-5. doi: 10.1373/clinchem.2011.179507.

Clarke W, Molinaro RJ, Bachmann LM, Botelho JC, Cao Z, French D, Garg S, Gawoski JM, Grant RP, Hoofnagle AN, Kulasingam V, Mason DS, Rappold B, Tacker DH, **Truscott SM**, Yu C, Zhu Y. Liquid Chromatography-Mass Spectrometry Methods; Approved Guideline. CLSI document C62A. Wayne, PA: Clinical and Laboratory Standards Institute; 2014.

Book Chapter

Truscott SM, Caffo AL. Laboratory Calculations (Ch. 6). In: Clarke W, editor. Contemporary Practice in Clinical Chemistry, 3rd Ed. Washington DC: AACC Press, 2016. pp. 63-80.

PRESENTATIONS

Truscott SM, Miley MJ, Yu YYL, Gilfillan S, Fremont DH, Hansen TH, Lybarger L. Biochemical features of the non-classical MHC protein MR1 consistent with an immunological function. *FASEB J*. 2003 Apr 14; 17(7). Annual Meeting of the American Association of Immunologists (AAI) 2003, Denver, CO.

Truscott SM, Lybarger L, Martinko JM, Myers NB, Primeau T, Vargas CL, Connolly JM, Mitaxov VE, Fremont DH, Hansen TH. Disulfide bond engineering to trap antigenic peptides in the MHC class I binding groove. *FASEB J*. 2005 Mar 7; 19(5). Experimental Biology 2005, San Diego, CA.

Truscott SM, Abate G, Price JD, Kemper C, Atkinson JP, Hoft DF. CD46-induced regulatory T cells suppress Mycobacterium tuberculosis-specific effector T cell responses. Annual Meeting of the American Association of Immunologists (AAI) 2009, Seattle, WA.

Truscott SM, Wilkey DW, Bogdanov B, Merchant ML, Valdes R Jr. Digoxin and dihydrodigoxin: quantification by mass spectrometry and implications for cancer therapeutics. Association of Clinical Scientists (ACS). May 2011, Louisville, KY.

POSTERS

Truscott SM, Yu YYL, Harris MR, Lybarger L, Kimpler LA, Virgin HW, Hansen TH. Physical association of the K3 protein of γ 2-herpesvirus-68 with MHC class I molecules with impaired peptide and β 2m assembly. *FASEB J*. 2002 Mar 20; 16(4). Experimental Biology 2002, New Orleans, LA.

Truscott SM, Wilkey DW, Bogdanov B, Merchant ML, Valdes R Jr. Quantification of digoxin and its metabolite dihydrodigoxin by mass spectrometry and implications for cancer therapeutics. Annual Meeting of the Association for Mass Spectrometry: Applications to the Clinical Laboratory (MSACL). Feb 2011, San Diego, CA.

Truscott SM, Kristie Rappe, Clark Daniel, Saeed A. Jortani. Potential Pitfalls in Free Phenytoin Measurements include Centrifugation Temperature. Annual Meeting of the American Association for Clinical Chemistry (AACC). Jul 2011, Atlanta, GA.

Truscott SM, Wilkey DW, Bogdanov B, Merchant ML, Valdes R Jr. Clinical Mass Spectrometry to Quantify Therapeutic and Endogenous Cardenolides with Anti-cancer Properties. Annual Meeting of the American Association for Clinical Chemistry (AACC). Jul 2011, Atlanta, GA.

Truscott SM, Wilkey DW, Fridell EL, Merchant ML, Valdes R Jr. Sensitive quantification of digoxin by LC-MS/MS as groundwork for the development of a clinical test for an endogenous ROR α ligand. Annual Meeting of the Association for Mass Spectrometry: Applications to the Clinical Laboratory (MSACL). Jan 2012, San Diego, CA.

Truscott SM, Ruzicka P, Chen J, Mummert A, Terrell AR, Jortani SA. Lack of Adequate Specificity in an Approved Urine Oxycodone Immunoassay Results in a Nearly 50% False Positive Rate. Annual Meeting of the American Association for Clinical Chemistry (AACC). Jul 2012, Los Angeles, CA.

Jolly B, **Truscott SM**. Electrophoretic Identification and Isotyping of an Immunoglobulin-bound Alkaline Phosphatase Macroenzyme Complex in a Patient Serum. Annual Meeting of the American Association for Clinical Chemistry (AACC). Jul 2013, Houston, TX. Abstract published in *Clin Chem*. 2013 Oct;59(S10):A216.

Truscott SM, Kampfrath T. Simplifying Preanalytical Requirements in Sepsis Evaluation: Plasma Lactate Samples Collected in Fluoride/Oxalate Tubes Do Not Require Transport on Ice. Annual Meeting of the American Association for Clinical Chemistry (AACC). Aug 2018, Chicago, IL.