

CURRICULUM VITAE

DEAN R. TOLAN

ADDRESS: Biology Department
Boston University
5 Cummington Mall
Boston Massachusetts 02215
(617) 353-5310
(617) 353-6340 (FAX)

E-mail: tolan@bu.edu
web site: <http://www.bu.edu/aldolase>

Office: 24 Cummington, Room 702
Lab: 24 Cummington, Room 724

EDUCATION:

| | | | |
|----------------|--------------|--|--|
| Postgraduate: | Institution: | University of California Davis California 95616 | Ph.D. in Biochemistry, 1981 |
| Undergraduate: | Institution: | University of Colorado Boulder Colorado 80301 | B.A. <i>cum laude</i> in Chemistry, 1975 |

PROFESSIONAL EMPLOYMENT:

| | |
|--------------------|---|
| 2009 | Visiting Professor, University of Naples Federico II, ITALY |
| 2003-2005 | Director, MCBB Graduate Program, Boston University, Boston MA |
| 1999-present | Professor of Biology, Boston University, Boston MA |
| 1999-present | Professor of Bioinformatics, Boston University, Boston MA |
| 1997-present | Director, HFI Laboratory - Boston University (CLIA approved), Boston MA |
| 1996-present | Professor, Molecular Biology, Cell Biology & Biochemistry (MCBB) Graduate Program, Boston University, Boston MA |
| 1996-2003, 2005-08 | Associate Director, MCBB Graduate Program, Boston University, Boston MA |
| 1996-1997 | Visiting Professor, Institut für Biophysik und Physikalische Biochemie, Universität Regensburg, Regensburg, GERMANY |
| 1993-1999 | Associate Professor of Biology (tenure), Boston University, Boston MA |
| 1987-1993 | Assistant Professor of Biology and Interdepartmental Biochemistry, Boston University, Boston MA |
| 1984-1986 | Assistant Specialist Biochemist, University of California, Berkeley CA |
| 1981-1984 | NIH Postdoctoral Fellow, Biochemistry Department, University of California, Berkeley CA |

AWARDS AND HONORS:

| | |
|-----------|---|
| 2000 | Provost's Innovation Fund Research Award |
| 1996 | Deutscher Akademischer Austauschdienst Scholarship (DAAD) |
| 1987-1992 | NIH - FIRST Award |
| 1988 | ASBMB: 14th IUB Travel Award |
| 1983-1985 | NRSA Postdoctoral Fellowship |
| 1979 | NATO/EMBO Travel Fellowship, Island of Spetsai, Greece |
| 1976-1979 | NIH Traineeship, University of California, Davis |
| 1975-1976 | Teaching Assistantship Award, Biological Chemistry Department, Univ. of California, Davis |
| 1971-1973 | Regents Scholar, University of Colorado, Boulder |

MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS:

Human Genome Variation Society (Gene Editor) - 2004
Protein Society - 1994
Society for Inherited Metabolic Disorders - 1991
American Society of Biochemistry and Molecular Biology - 1988
American Society of Human Genetics - 1987
American Association for the Advancement of Science - 1984
American Chemical Society - 1980

Seminars and Invited Lectures (55):

- Hereditary Fructose Intolerance in the American Population.* University of Colorado, Anschutz Medical Campus, Division of Renal Diseases and Hypertension, April 8, 2014.
- The Warburg Effect.* Lectures in Carcinogenesis (BI576), Biology Department, Boston University, Boston MA, February 26, 2014.
- The Warburg Effect.* Lectures in Carcinogenesis (BI576), Biology Department, Boston University, Boston MA, March 20, 2013.
- Molecular Genetics and Pathophysiology of Hereditary Fructose Intolerance in the American Population.* Tufts Medical Center, Floating Hospital for Children, Division of Genetics, Grand Rounds, June 27, 2011.
- The Warburg Effect.* Lectures in Carcinogenesis (BI576), Biology Department, Boston University, Boston MA, April 13, 2011.
- Protein Dynamics provide the Substrate Specificity in the Fructose 1,6-bisphosphate Aldolase Isozymes.* Département de biochimie, Faculté de médecine UNIVERSITÉ DE MONTRÉAL, March 9, 2010.
- Enzyme dynamics involved in substrate specificity: Evidence for differential conformational changes distant from the active site during the aldolase catalyzed reaction.* 23rd Symposium of the Protein Society, Boston, MA, July 28, 2009. [presented by Florencia Rago]
- Enzyme dynamics involved in substrate specificity: Evidence for substrate specific conformational changes distant from the active site during aldolase A catalysis.* 11th Annual Beckman Scholars Symposium, University of California-Irvine, CA, July 24, 2009. [presented by Florencia Rago]
- Fructose metabolism in tolerant and intolerant humans.* CEINGE Biotechnologie and Università Degli Studi di Napoli Federico II, Naples, ITALY, June 12, 2009.
- Conformational dynamics in normal and pathogenic aldolases.* CEINGE Biotechnologie and Università Degli Studi di Napoli Federico II, Naples, ITALY, June 12, 2009.
- Fructose: Succumbing to Our Sweet Tooth.* BIOMixer, Biology Department, Boston University, Boston MA, October 25, 2007.
- Using genomic expression data for discerning tissue-specific patterns of sugar metabolism: The resourcefulness of neurons.* 232nd ACS National Meeting, Division of Biological Chemistry, San Francisco, CA, September 13, 2006.
- Conformational flexibility and distance effects determine kinetic distinctions among aldolase isozymes.* International Union of Biochemistry and Molecular Biology, Boston, MA, June, 13, 2004.
- Fructose Metabolism: In vitro, In vivo, and In silico.* Department of Physiology and Biophysics, Boston University School of Medicine, Boston, MA, March 18, 2003
- Progress in Understanding the Quaternary Structure of Aldolase.* Institut für Biophysik und Physikalische Biochemie, Universität Regensburg, Germany, May 30, 1997
- The Mechanism of the Schiff Base Forming Aldolases and Other Enzymes Investigated by Site-Directed Mutagenesis and Pre-Steady State Kinetics.* Department of Chemistry and Biochemistry, The University of Texas, Austin, TX, May 2, 1997
- Structural Consequences of Both Hereditary and Site-directed Mutants of Aldolase A.* Institut für Biophysik und Physikalische Biochemie, Universität Regensburg, Germany, April 25, 1997
- The Mechanism of the Schiff Base Forming Aldolases and Other Enzymes Investigated by Site-Directed Mutagenesis and Pre-Steady State Kinetics.* Department of Chemistry, University of Exeter, United Kingdom, April 17, 1997
- The Mechanism of the Schiff Base Forming Aldolases and Other Enzymes Investigated by Site-Directed Mutagenesis and Pre-Steady State Kinetics.* Department of Biochemistry and Molecular Biology, University of Leeds, United Kingdom, April 16, 1997
- Homology in Biology.* Institut für Biophysik und Physikalische Biochemie, Universität Regensburg, Germany, February 28, 1997
- Selection of Primers for PCR and Mutagenesis.* Institut für Biophysik und Physikalische Biochemie, Universität Regensburg, Germany, January 17, 1997
- Hereditary Fructose Intolerance: Molecular Analysis of Mutations and Polymorphisms in the Aldolase B Gene.* Biomedical Sciences Division, Meharry Medical College, Nashville TN, August 25, 1995
- A New Mechanism for Class I Aldolase Based on Site-directed Mutagenesis.* Chemistry Department, Boston College, Boston MA May 9, 1995
- How Does Aldolase Break a Sugar into Bits?* Worcester Enzyme Discussion Group, University of Massachusetts Medical Center, Worcester MA, May 4, 1995

Seminars and Invited Lectures (continued):

- Genetics, Pathology, and Diagnosis of Hereditary Fructose Intolerance: Molecular Analysis of Mutations.* Center for Human Genetics, Boston University Medical School, Boston MA November 29, 1994
- Use of the Polymerase Chain Reaction in Identification of Mutations and the Diagnosis of Disease.* American Chemical Society Regional Meeting, Keynote Address, Bethany College, WV April 18, 1994
- Polymerase Chain Reaction in Diagnosis and Research.* Department of Chemistry, Boston University, Summer NSF Biotechnology Program, Boston MA July 30, 1993
- Hereditary Fructose Intolerance.* Center for Human Genetics, Boston University Medical School, Boston MA October 20, 1992
- Polymerase Chain Reaction in Diagnosis and Research.* Department of Chemistry, Boston University, Summer NSF Biotechnology Program, Boston MA July 17, 1992
- Hereditary Fructose Intolerance.* Biology Department, Boston University, March 30, 1992
- Chain Reaction in Diagnosis and Research.* Department of Chemistry, Boston University, Summer NSF Biotechnology Program, Boston MA July 26, 1991
- Characterizing Aldolase Mutations Responsible for Hereditary Fructose Intolerance.* Department of Pathology, Boston University School of Medicine, Boston MA January 25, 1991
- Molecular Genetics of Hereditary Fructose Intolerance.* Division of Pediatric Gastroenterology and Nutrition, Tufts University New England Medical Center, Boston MA Sept. 13, 1990
- Screening and Detection of Hereditary Fructose Intolerance Alleles in Newborn Blood Samples Using Polymerase Chain Reaction.* Vth International Congress - Inborn Errors of Metabolism, Asilomar, CA June 4, 1990
- Molecular Biology of Hereditary Fructose Intolerance.* Symposium - Topics in Molecular Medicine and Biotechnology Division of Molecular Pathology, Armed Forces Institute of Pathology, Walter Reed Army Medical Center, Washington D.C. April 20, 1990
- Recent Advances in Understanding Metabolic Disease.* Division of Pediatric Endocrinology and Metabolism, Rhode Island Hospital, Brown University, Providence RI March 30, 1990
- Molecular Genetics of HFI: Studies of Human Liver Aldolase B.* Biology Department, Rhode Island College, Providence RI March 28, 1990
- The Role of the Carboxyl Terminus of Aldolase in Catalytic Studies using Site-directed Mutagenesis.* Molecular Biophysics Program, Physics Department, Boston University, Boston MA October 5 1989
- Phenotypic Variants of the Genetic Illness, Hereditary Fructose Intolerance.* Symposium - Fructose Bisphosphate Aldolases, University of Sherbrooke, Quebec, Canada June 8-10 1989
- Molecular Genetics of Aldolase B.* New England Regional Screening Program, State Laboratory Institute, Jamaica Plain, MA December 16, 1988
- Human Aldolase Genes; Screening for Hereditary Fructose Intolerance.* Harvard Medical School, Mass. General Hospital, Boston MA October 21, 1988
- A Missense Mutation is a Common Allele in Hereditary Fructose Intolerance.* Boston University Medical School, Center for Human Genetics, Boston MA March 17, 1988
- Structure and Function of the Aldolase Genes in Humans;*
 Chemistry Department, Texas Tech University, December 1985*
 Biology Department, Boston University, January 1986*
 Chemistry Department, Georgia Tech, January 1986
 Biochemistry Department, Medical School, Louisiana State University, Shreveport, January 1986
 Biology Department, Portland State University, January 1986*
 Pathology Department, Florida State University, February 1986
 Biochemistry Department, Medical School, Ohio State University, February 1986
 Chemistry Department, New York University, February 1986
 Biochemistry Department, Medical School, Kansas University, March 1986
 Biochemistry Department, Medical School, Louisiana State Univ., New Orleans, March 1986*
- DNA Sequence Determination of the Human Aldolase Genes using 7-deaza-dGTP.* Department of Organic and Biological Chemistry, University of Ösnabrück, West Germany May 1986
- Evolutionary Implications of the Human Aldolase A,B,C and Pseudo-Gene Chromosomal Locations.* Department of Biochemistry, School of Medicine, University of Sherbrooke, Quebec, Canada September 1986
- Ribosomal Sites of Interaction of Eukaryotic Initiation Factors.* Friedrich Miescher-Institut, CIBA-GEIGY, Basel, Switzerland September 1979

PUBLICATIONS:

Original Articles:

(underline indicates corresponding author)

1. Tolan, D.R., Lambert, J.M., Boileau, G., Fanning, T.G., Kenny, J.W., Vassos, A. and Traut, R.R. (1980) Radioiodination of microgram quantities of ribosomal proteins from polyacrylamide gels. *Analytical Biochemistry* **103**, 101-109. [PMCID-6990826]
2. Meyer, L.J., Brown-Leudi, M.L., Corbett, S., Tolan, D.R. and Hershey, J.W.B. (1981) The purification and characterization of multiple forms of protein synthesis initiation factors eIF-2, eIF-3 and eIF-5 from rabbit reticulocytes. *Journal of Biological Chemistry* **256**, 351-356. [PMCID-7451444]
3. Tolan, D.R. and Traut, R.R. (1981) Protein topography of the 40S ribosomal subunit from rabbit reticulocytes shown by cross-linking with 2-iminothiolane. *Journal of Biological Chemistry* **256**, 10129-10136. [PMCID-7275971]
4. Tolan, D.R., Hershey, J.W.B. and Traut, R.R. (1983) Cross-linking of eukaryotic initiation factor eIF-3 to the 40S ribosomal subunit from rabbit reticulocytes. *Biochimie* **65**, 427-436. [PMCID-6414530]
5. Tolan, D.R., Amsden, A.B., Putney, S.D., Urdea, M. and Penhoet, E.E. (1984) The complete nucleotide sequence of the messenger RNA for rabbit muscle fructose diphosphate aldolase. *Journal of Biological Chemistry* **259**, 1127-1131. [PMCID-6546378]
6. Rottmann, W.H., Tolan, D.R. and Penhoet, E.E. (1984) Complete amino acid sequence for human aldolase B derived from cDNA and genomic clones. *Proceedings of the National Academy of Sciences USA* **81**, 2738-2742. [PMCID-6585824]
7. Arps, P.J., Marvel, C.C., Rubin, B.C., Tolan, D.R., Penhoet, E.E. and Winkler, M.E. (1985) Structural features of the hisT operon of *Escherichia coli* K-12. *Nucleic Acids Research* **14**, 5297-5315. [PMCID-2991861]
8. Lebo, R.V., Tolan, D.R., Bruce, B.D., Cheung, M.-C. and Kan, Y.W. (1985) Spot-blot analysis of sorted chromosomes assigns a fructose intolerance disease to chromosome 9. *Cytometry* **6**, 478-483. [PMCID-4042788]
9. Tolan, D.R. and Penhoet, E.E. (1986) Characterization of the human aldolase B gene. *Molecular Biology and Medicine* **3**, 245-264. [PMCID-3016456]
10. Barr, P.J., Thayer, R., Laybourne, P., Najarian, R.C., Seela, F. and Tolan, D.R. (1986) 7-Deaza-2'-deoxy-guanosine- 5'-triphosphate: Enhanced resolution in M13 dideoxy sequencing. *BioTechniques* **4**, 428-432.
11. Kelley, P.M. and Tolan, D.R. (1986) The complete amino acid sequence for the anaerobically induced aldolase from maize derived from cDNA clones. *Plant Physiology* **82**, 1076-1080. [PMCID-16665137]
12. Rottmann, W.H., DeSelms, K.R., Niclas, J., Camerato, T., Holman, P.S., Green, C.J. and Tolan, D.R. (1987) The complete amino acid sequence of the human aldolase C isozyme derived from genomic clones. *Biochimie* **69**, 137-145. [PMCID-3105602]
13. Nonet, M.L., Marvel, C.C. and Tolan, D.R. (1987) The hisT-purF region of the *Escherichia coli* K-12 chromosome: Identification of additional genes of the hisT and purF operons. *Journal of Biological Chemistry* **262**, 12209-12217. [PMCID-3040734]
14. Tolan, D.R., Niclas, J., Bruce, B.D. and Lebo, R.V. (1987) Evolutionary implication of the human aldolase A, B, C and pseudo-gene chromosomal locations. *American Journal of Human Genetics* **41**, 907-924. [PMCID-3674018]
15. Mestek, A., Stauffer, J., Tolan, D.R. and Ciejek-Baez, E. (1987) Sequence of a mouse brain aldolase A cDNA. *Nucleic Acids Research* **15**, 10595. [PMCID-3697100]
16. Cross, N.C.P., Tolan, D.R. and Cox, T.M. (1988) Catalytic deficiency of human aldolase B in hereditary fructose intolerance caused by a common missense mutation. *Cell* **53**, 881-885. [PMCID-3383242]
17. Berthiaume, L., Beaudry, D., Lazure, C., Tolan, D.R. and Sygyusch, J. (1989) Recombinant anaerobic Maize aldolase: Over-expression, characterization, and metabolic implications. *Archives of Biochemistry and Biophysics* **272**, 281-289. [PMCID-2751305]
18. Cross, N.C.P., de Franchis, R., Sebastio, G., Dazzo, C., Tolan, D.R., Gregori, C., Odièvre, N., Vidalhet, M., Romano, V., Mascali, G., Romano, C., Musumeci, S., Steinmann, B., Gitzelmann, R. and Cox, T.M. (1990) Molecular analysis of aldolase B genes in hereditary fructose intolerance. *Lancet* **335**, 306-309. [PMCID-1967768]
19. Dazzo, C. and Tolan, D.R. (1990) Molecular evidence for compound heterozygosity in hereditary fructose intolerance. *American Journal of Human Genetics* **46**, 1194-1199. [PMCID-2339710]
20. Podlisny, M., Tolan, D.R. and Selkoe, D. (1991) Homology of the amyloid beta protein precursor in monkey and human supports a primate model for beta amyloidosis in Alzheimer's disease. *American Journal of Pathology* **138**, 1423-1435. [PMCID-1905108]

21. Brooks, C.C., Buist, N., Tuerck, J. and Tolan, D.R. (1991) Identification of a splice-site mutation in the aldolase B gene from an individual with hereditary fructose intolerance. *American Journal of Human Genetics* **49**, 1075-1081. [PMCID-1928090]
22. Maine, A.B., Stauffer, J.K., Tolan, D.R. and Ciejek-Baez, E. (1992) Unique use of alternative polyadenylation signals in the mouse aldolase B gene. *Biochimica et Biophysica Acta* **1129**, 243-245. [PMCID-1730064]
23. Shaw-Lee, R., Lissemore, J.L., Sullivan, D.T. and Tolan, D.R. (1992) Alternative splicing of fructose 1,6-bisphosphate aldolase transcripts in *Drosophila melanogaster* predicts three isozymes. *Journal of Biological Chemistry* **267**, 3959-3967. [PMCID-1740444]
24. Beernink, P. T. and Tolan, D.R. (1992) Construction of a high copy 'ATG vector' for expression in *Escherichia coli*. *Protein Expression and Purification* **3**, 332-336. [PMCID-1422227]
25. Tolan, D.R. and Brooks, C.C. (1992) Molecular analysis of common aldolase B alleles for hereditary fructose intolerance in North Americans. *Biochemical Medicine and Metabolic Biology* **48**, 19-25. [PMCID-1524867]
26. Amsden, A.B., Penhoet, E.E. and Tolan, D.R. (1992) A rabbit aldolase A pseudogene derived from a partially spliced primary transcript. *Gene* **120**, 323-324. [PMCID-1398149]
27. Podlisny, M.B., Stephenson, D.T., Frosch, M.P., Tolan, D.R., Liederburg, I., Clemens, J.A. and Selkoe, D.J. (1993) Microinjection of synthetic amyloid β -protein in monkey cerebral cortex fails to produce acute neurotoxicity. *American Journal of Pathology* **142**, 17-24. [PMCID-8424453]
28. Morris, A.J. and Tolan, D.R. (1993) Site-directed mutagenesis identifies aspartate 33 as a previously unidentified critical residue in the catalytic mechanism of rabbit aldolase A. *Journal of Biological Chemistry* **268**, 1095-1100. [PMCID-8419316]
29. Brooks, C.C. and Tolan, D.R. (1993) Association of the widespread A149P hereditary fructose intolerance mutation with newly identified sequence polymorphisms in the aldolase B gene. *American Journal of Human Genetics* **52**, 835-840. [PMCID-8096362]
30. Berthiaume, L., Tolan, D.R. and Sygusch, J. (1993) Differential usage of the carboxyl-terminal region among aldolase isozymes. *Journal of Biological Chemistry* **268**, 10826-10835. [PMCID-8496148]
31. Brooks, C.C. and Tolan, D.R. (1994) A partially active mutant aldolase B from a patient with hereditary fructose intolerance. *FASEB Journal* **8**, 107-113. [PMCID-8299883]
32. Beernink, P. T. and Tolan, D.R. (1994) Subunit interface mutants of rabbit muscle aldolase form active dimers. *Protein Science* **3**, 1383-1391. [PMCID-7833800]
33. Morris, A.J. and Tolan, D.R. (1994) Lysine-146 of rabbit muscle aldolase is essential for cleavage and condensation of the C3-C4 bond of fructose-1,6-bis(phosphate). *Biochemistry* **33**, 12291-12297. [PMCID-7918450]
34. Tolan, D.R. (1995) Molecular basis of hereditary fructose intolerance: Mutations and polymorphisms in the human aldolase B gene. *Human Mutation* **6**, 210-218. [PMCID-8535439]
35. Doyle, S.A. and Tolan, D.R. (1995) Characterization of recombinant human aldolase B and purification by metal chelate chromatography. *Biochemical Biophysical Research Communications* **206**, 902-908. [PMCID-7832803]
36. Meighan-Mantha, R.L. and Tolan, D.R. (1995) Noncoordinate changes in the steady-state mRNA expressed from aldolase A and aldolase C genes during differentiation of chicken myoblasts. *Journal of Cellular Biochemistry* **57**, 423-431. [PMCID-7768978]
37. Meighan-Mantha, R.L., Hausman, R.E. and Tolan, D.R. (1995) Expression of aldolase A steady-state mRNA is delayed relative to other muscle-specific genes during differentiation of chicken myoblasts. *Experimental Cell Research*, **220**, 55-61. [PMCID-7664843]
38. Morris, A.J., Davenport, R.C. and Tolan, D.R. (1996) A lysine to arginine substitution at position 146 of rabbit aldolase a changes the rate determining step to Schiff base formation. *Protein Engineering* **9**, 61-67. [PMCID-9053904]
39. Wang, J., Morris, A.J., Tolan, D.R. and Pagliaro, L. (1996) The molecular nature of the F-actin binding activity of aldolase revealed with site-directed mutants. *Journal of Biological Chemistry* **271**, 6861-6865. [PMCID-8636111]
40. Beernink, P.T. and Tolan, D.R. (1996) Disruption of the aldolase A tetramer into catalytically active monomers. *Proceedings of the National Academy of Sciences USA* **93**, 5374-5379. [PMCID-8643582]
41. Berardini, T.Z., Drygas-Williams, M., Callard, G.V. and Tolan, D.R. (1997) Identification of neuronal isozyme specific residues by comparison of goldfish aldolase C to other aldolases. *Comparative Biochemistry and Physiology* **117A**, 471-476. [PMCID-9219352]
42. Phillips, J.L., Tolan, D.R. and Hausman, R.E. (1997) Antisense inhibition of R-cognin expression modulates differentiation of retinal neurons in vitro. *Molecular Vision* **3**, 12. (<http://www.molvis.org/molvis/v3/phillips>) [PMCID-9383335]

43. Wang, J., Tolan, D.R. and Pagliaro, L. (1997) Metabolic compartmentation in living cells: structural association of aldolase. *Experimental Cell Research* **237**, 445-451. [PMCID-9434640]
44. Phillips, J.L., Holdengreber, V., Ben-Shaul, Y., Tolan, D.R. and Hausman, R.E. (1997) Developmental localization of retina cognin synthesis by *in situ* hybridization. *Developmental Brain Research* **104**, 143-152. [PMCID-9466717]
45. Lau, J. and Tolan, D.R. (1999) Screening for hereditary fructose intolerance mutations by reverse dot-blot. *Molecular and Cellular Probes* **13**, 35-40. [PMCID-10024431]
46. Berardini, T.Z., Amsden, A.B., Penhoet, E.E. and Tolan, D.R. (1999) Identification of conserved promoter elements for *aldB* and isozyme specific residues in aldolase B. *Comparative Biochemistry and Physiology B: Biochemistry and Molecular Biology* **122**, 53-61. [PMCID-10327593]
47. Baron, C.B., Tolan, D.R., Choi, K.H. and Coburn, R.F. (1999) Aldolase A-Ins(1,4,5)P₃ binding domains as determined by site-directed mutagenesis. *Biochemical Journal* **341**, 805-812. [PMCID-10417347]
48. Choi, K.H., Mazurkie, A.S., Morris, A.J., Utheza, D., Tolan, D.R. and Allen, K.N. (1999) Structure of a fructose 1,6 bis(phosphate) aldolase liganded to its native substrate in a cleavage defective mutant at 2.3 Å. *Biochemistry* **38**, 12655-12664. [PMCID-10504235]
49. Funari, V.A., Leyfer, D. and Tolan, D.R. (2000) Expression Profiling using the Expressed Sequence Tag (EST) Database for Comparative Physiology and Metabolism. In *Recent Research Developments in Comparative Biochemistry & Physiology Vol.1* (S.G. Pandalai, Ed.) Transworld Research Network, Kerala, India, pp. 13-30.
50. Dalby, A., Tolan, D.R. and Littlechild, J.A. (2001) Crystal structure of human liver fructose 1,6-bisphosphate aldolase. *Acta Crystallography D Biological Crystallography* **D57**, 1526-1533. [PMCID-11679716]
51. Choi, K.H., Shi, J., Hopkins, C.E., Tolan, D.R. and Allen, K.N. (2001) Snapshots of Catalysis: The structure of fructose 1,6-bisphosphate aldolase covalently bound to the substrate dihydroxyacetone phosphate. *Biochemistry* **40**, 13868-13875. [PMCID-11705376]
52. Hopkins, C.E., O'Connor, P.B., Allen, K.N., Costello, C.E. and Tolan, D.R. (2002) Chemical-modification rescue assessed by mass spectrometry demonstrates γ -thia-lysine yields the same activity as lysine in aldolase. *Protein Science* **11**, 1591-1599. [PMCID-12070312]
53. Mori, C., Spooner, E.T., Wisniewski, K.E., Wisniewski, T.M., Yamaguchi, H., Saido, T.C., Tolan, D.R., Selkoe, D.J. and Lamere, C.A. (2002) Intraneuronal A β 42 accumulation in Down Syndrome brain. *Amyloid: Journal of Protein Folding Disorders* **9**, 88-102. [PMCID-12440481]
54. Malay, A.D., Procius, S.L. and Tolan, D.R. (2002) The temperature dependence of activity and structure for the most prevalent mutant aldolase B associated with hereditary fructose intolerance. *Archives of Biochemistry and Biophysics* **408**, 295-304. [PMCID-12464284]
55. Pezza, J., Choi, K.H., Berardini, T.Z., Beernink, P.T., Allen, K.N. and Tolan, D.R. (2003) Spatial clustering of isozyme-specific residues reveals unlikely determinants of isozyme specificity in fructose 1,6-bisphosphate aldolase. *Journal of Biological Chemistry* **278**, 17307-17313. [PMCID-12611890]
56. Barshop, B.A., Nyhan, W.L., Steenhout, P.H., Endres, W., Tolan, D.R., Clemens, R.A. (2003) Fructo-oligosaccharide tolerance in patients with hereditary fructose intolerance. A preliminary nonrandomized open challenge short-term study. *Nutrition Research* **23**, 1003-1011.
57. Tolan, D.R., Schuler, B., Beernink, P.T. and Jaenicke, R. (2003) Thermodynamic analysis of the dissociation of the aldolase tetramer substituted at one or both of the subunit interfaces. *Biological Chemistry* **384**, 1463-1471. [PMCID-14669989]
58. Yao, David C., Tolan, D.R., Murray, M.F., Harris, D.J., Darras, B.T., Geva, A. and Neufeld, E. J. (2004) Hemolytic anemia and severe rhabdomyolysis due to compound heterozygous mutations of the gene for erythrocyte/muscle isozyme of aldolase: ALDOA^(Arg303X/Cys338Tyr). *Blood* **203**, 2401-2403, [Epub 11 / 13, 2003; PMCID-14615364]
59. Stormon, M.O., Cutz, E., Furuya, K., Bedford, M., Yerkes, L., Tolan, D.R. and Feigenbaum, A. (2004) A six-month-old infant with liver steatosis. *Journal of Pediatrics* **144**, 258-263. [PMCID-14760272]
60. Choi, K.-H. and Tolan, D.R. (2004) Presteady-state kinetic evidence for a ring-opening activity in fructose-1,6-(bis)phosphate aldolase. *Journal of the American Chemical Society* **126**, 3402-3403. [PMCID-15025449]
61. Pezza, J.A., Allen, K.N. and Tolan, D.R. (2004) Intein-mediated purification of a recombinantly expressed peptide. *Chemical Communications* **2412-2413**. [PMCID-15514791]
62. Arakaki, T.L., Pezza, J.A., Cronin, M.A., Hopkins, C.E., Zimmer, D.B., Tolan, D.R. and Allen, K.N. (2004) Structure of human brain fructose 1,6-bisphosphate aldolase: Linking isozyme structure with function. *Protein Science* **13**, 3077-3084. [PMCID-15537755]
63. Malay, A.D., Allen, K.N. and Tolan, D.R. (2005) Structure of the thermolabile mutant aldolase B, A149P: molecular basis of hereditary fructose intolerance. *Journal of Molecular Biology* **347**, 135-144. [PMCID-15733923]

64. Cañete-Soler, R., Reddy, K.S., Tolan, D.R. and Zhai, J. (2005) Aldolases A and C are ribonucleolytic components of a neuronal complex that regulates the stability of the light-neurofilament (NF-L) mRNA. *Journal of Neuroscience*, **25**, 4353-4365. [PMCID-15858061]
65. Hopkins, C.E., Hernandez, G., Lee, J.P. and Tolan, D.R. (2005) Aminoethylation in model peptides reveals conditions for maximizing thiol specificity. *Archives of Biochemistry and Biophysics* **443**, 1-10. [PMCID-16229814]
66. Funari, V.A., Herrera, V.L.M., Freeman, D. and Tolan, D.R. (2005) Genes required for fructose metabolism are expressed in Purkinje cells in the cerebellum. *Molecular Brain Research* **142**, 115-122. [PMCID-16266770]
67. Choi, K.-H., Lai, V., Foster, C.E., Morris, A.J., Tolan, D.R. and Allen, K.N. (2006) New Superfamily Members Identified for Schiff-base Enzymes Based on Verification of Catalytically Essential Residues. *Biochemistry*, **45**, 8546-8555. [PMCID-16834328]
68. Funari, V.A., Crandall, J.E. and Tolan, D.R. (2007) Fructose Metabolism in the Cerebellum. *The Cerebellum (review)*, **6**, 130-140. [DOI: 10.1080/14734220601064759, First Published on: 12 February 2007] [PMCID-17510913]
69. Pezza, J.A., Stopa, J.D., Brunyak, E.M., Allen, K.N. and Tolan, D.R. (2007) Thermodynamic analysis shows conformational coupling and dynamics confer substrate specificity in fructose-1,6-bisphosphate aldolase. *Biochemistry*, **46**, 13010-13018. [PMCID-17935305]
70. Cotton, R.G.H., Auerbach, A.D., Beckmann, J.S., Blumenfeld, O.O., Brookes, A.J., Brown, A.F., Carrera, P., Cox, D.W., Gottlieb, B., Greenblatt, M.S., Hilbert, P., Lehvaslaiho, H., Liang, P., Marsh, S., Nebert, D.W., Povey, S., Rossetti, S., Scriver, C.R., Summar, M., Tolan, D.R., Verma, I.C., Vihinen, M., and den Dunnen, J.T. (2008) Definitions of Locus Specific Data Bases and their Curation. *Human Mutation*, **29**, 2-5. [DOI: 10.1002/humu.20650, First published on: Dec 21 2007] [PMCID-18157828]
71. Sherawat, M. Tolan, D.R., and Allen, K.N. (2008) Crystal structure of a rabbit muscle fructose-1, 6-bisphosphate aldolase A dimer variant with dihydroxyacetone phosphate. *Acta Crystallographica C*, **64**, 543-550. [Epub 2008 Apr 19] [PMCID-18453690]
72. Tolan D.R (2008) *Biochemistry: Laboratory Manual*. Copley Press, Boston MA, pp. 341.
73. Coffee, E.M., Yerkes, L., Ewen, E.P., Zee, T., and Tolan, D.R. (2010) Increased prevalence of mutant null alleles that cause hereditary fructose intolerance in the American population. *Journal of Inherited Metabolic Disease*, **33**, 33-42. [DOI: 10.1007/s10545-009-9008-7, Epubl 2009 Dec 23] [PMCID-20033295]
74. Funari, V.A., Voevodski, K., Leyfer, D., Yerkes, L., Cramer, D., and Tolan, D.R. (2010) Quantitative gene-expression profiles in real time from expressed sequence tag databases. *Gene Expression*, **14**, 321-336. [PMCID-20635574]
75. Coffee, E.M. and Tolan, D.R. (2010) Mutations in the promoter region of the Aldolase B gene that cause Hereditary Fructose Intolerance are common among Hispanics and African-Americans. *Journal of Inherited Metabolic Disease*, **33**, 715-725. [DOI:10.1007/s10545-010-9192-5, E-pub 2010 Nov 28] [PMCID-20882353]
76. Stopa, J.D. and Tolan, D.R. (2011) Stabilization of the predominant hereditary fructose intolerance causing aldolase variant (A149P) with zwitterionic osmolytes. *Biochemistry*, **50**, 663-671. [PMCID-21166391]
77. Tolan, D.R. (2012) *Biochemistry: Laboratory Manual, 2nd Edition*. XanEdu/Copley Press, Boston MA, pp. 355. [ISBN-13: 978-1-58152-889-3]
78. Ritterson Lew, C. and Tolan, D.R. (2012) Targeting of several glycolytic enzymes using RNA interference reveals aldolase affects cancer-cell proliferation through a non-glycolytic mechanism. *Journal of Biological Chemistry*, **287**, 42554-42563. [PMCID-23093405]
79. Ritterson Lew, C. and Tolan, D.R. (2013) "Aldolase Sequesters WASP and Affects WASP/Arp2/3-Stimulated Actin Dynamics" *Journal of Cellular Biochemistry*, **114**, 1928-1939. [PMID-23495010]
80. Coffee, E.M. and Tolan, D.R. (2014) Chapter 3: Gluconeogenesis, In *Inborn Errors in Metabolism: From Neonatal Screening to Metabolic Pathways*. Lee, B. & Scaglia, F., eds. (Oxford University Press, New York), 68-91 of 384p. [ISBN: 9780199797585]
81. Oppelt, S.A., Coffee, E.M., and Tolan, D.R. (2015) Aldolase-B Deficiency in Mice Phenocopies Hereditary Fructose Intolerance in Humans. *Molecular Genetics and Metabolism*, **114**, 445-450. [PMCID-25637246]

Original Articles in Revision/Submitted/in Preparation:

82. Oppelt, S.A., Wanming, Z. and Tolan, D.R. (2015) Physiomic analysis reveals the brain as a significant site for fructose metabolism. *Molecular Brain Research*, **in revision**.
83. Hu, H., Juvekar, A., Lyssiotis, C.A., Albeck, J.G., Gopal, V., Hung, Y.P., Ullas, S., Tolan, D.R., Grant, A., Asara, J., Cantley, L.C., and Wulf, G.M. (2015) Phosphoinositide 3-Kinase regulates glycolysis through an AKT-independent mechanism that mobilizes Aldolase A release from the Actin cytoskeleton. *Cell*, **submitted**.

84. Rago, Florencia, Saltzberg, Daniel, Allen, Karen N., and Tolan, Dean R. (2015) Enzyme Substrate Specificity Conferred by Distinct Conformational Pathways. *Proceedings of the National Academy of Sciences, USA*, **submitted**.
85. Stopa, J.D. and Tolan, D.R. (2014) Optimal Osmolyte Determination for a Cross-Section of Protein Structural Classes., *Arch Biochem and Biophys*, **submitted**.
86. Wanming, Z. and Tolan, D.R. (2015) Complete expression profile of mammalian GLUTs and genes in fructose-1-phosphate pathway derived from bioinformatics data. *Gene Expression*, **in preparation**.
87. Tolan, D.R. (2015) *Biochemistry: Laboratory Manual, 3rd Edition*. XanEdu/Copley Press, Boston MA, , **in preparation**.