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RESEARCH EXPERIENCE

Cancer Research: 1983-1994
Cell production and cell differentiation in the immune and hematopoietic systems,
with emphasis on T cell traffic in the thymus, spleen and bone marrow.

Biomedical Informatics: 1996 to 2019
Knowledge representation in anatomy (spatial and symbolic): Developed and maintained the ontology for human anatomy called the Foundational Model of Anatomy Ontology (FMA), a computer-based anatomical knowledge source for programs and applications in medical education, basic science research and health care delivery that require reasoning about the human body.
Site: http://www.si.washington.edu/projects/fma
Reference: http://sigpubs.si.washington.edu/id/eprint/204/2/FMA_Chapter_final.pdfApplied FMA framework and content development for the following multidisciplinary biomedical domains:

Common Anatomy Reference Ontology (CARO): (https://link.springer.com/chapter/10.1007/978-1-84628-885-2_16)
-ontology to facilitate interoperability between existing anatomy ontologies for different species.

Foundational Model of Neuroanatomy: (https://jbiomedsem.biomedcentral.com/articles/10.1186/2041-1480-5-1)
-enhancement of the neuroanatomical content of the FMA to allow for integration of multiple views of neuroanatomical data organization.

Ontology of Craniofacial Development and Malformation (OCDM) for FaceBase (https://www.facebase.org/ocd): (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4041627/) -semantic framework for seamless navigation and integration of multiple web-accessible craniofacial data across different species.

Radiology Lexicon (RadLex), Radiological Society of North America; https://www.rsna.org/en/practice-tools/data-tools-and-standards/radlexradiology-lexicon): (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2656009/)
-evolution of controlled terminology into an ontology that would provide the uniform standard for all radiology-related information.

Ontology of Physics for Biology (OPB):
(http://sbp.bhi.washington.edu/projects/the-ontology-of-physics-forbiology-opb)
-reference ontology of classical physics as applied to the dynamics of biological systems.

Human Phenotype Ontology (HPO):
(https://hpo.jax.org/app/)
-standardized vocabulary of phenotypic abnormalities encountered in human diseases.

Virtual Soldier Knowledge Base (VSKB, DARPA-sponsored):
(http://www.virtualsoldier.us)
-FMA provided anatomical knowledge base to support the development of complex mathematical models to create physiological representations of individual soldiers.

Virtual Physiologic Human (VPH) anatomy axis:
(https://www.vph-institute.org/what-is-vph-institute.html)
-anatomical framework to support computational physiology that could be translated into clinical practice.Uberon Multi-species

Anatomy Ontology:
(http://www.obofoundry.org/ontology/uberon.html)
-FMA provided the backbone and content to create an integrated cross-species ontology.
Application ontologies for Acute respiratory distress syndrome (ARDS)
Radiological image findings
Dental consultation

Immunology
NeuroImaging
Head and neck radiation treatment planning
Ontology and Controlled terminology alignment:
FMA-SNOMED (Systematized Nomenclature in Medicine) CT mappings
FMA-Terminologia Anatomica (TA), International Federation of
Associations of Anatomists (IFAA)
Computer-based applications for biomedical education and clinical practice:

Dynamic scene generator:
http://sig.biostr.washington.edu/projects/dsg/
On-line information resources and interfaces for anatomy
FMA browser: http://fma.si.washington.edu/browser/#/

OCDM browser:
http://resources.si.washington.edu/ocdm_browser1/

BodyGen:
http://sig.biostr.washington.edu/projects/bodygen/bodyGen.html

Medical image segmentation and annotation AnnoteImage:
http://sig.biostr.washington.edu/projects/AnnoteImage/

TEACHING EXPERIENCE

University of Washington
Medical and Dental Students
Gross anatomy lecture, School of Medicine, 1998-2004
Gross anatomy dissection, School of Medicine, 2015-present

Graduate Students
Anatomy Ontology lecture in MEBI 534 class in Division of Biomedical and Health Informatics, 2006-2016

PROFESSIONAL ACTIVITIES

Postdoctoral Fellow, Cancer Research Group, Department of Biological Structure, University of Washington, 1984-89
Research Scientist, Cancer Research Group, Department of Biological Structure University of Washington, Seattle, 1990-94
Sabbatical leave, October 1994 to February 1996
Research Scientist, Structural Informatics Group, Department of Biological Structure
University of Washington, Seattle, 1996-98
Senior Research Scientist, Structural Informatics Group, Department of Biological Structure,
University of Washington, Seattle, 1998-2019
Visiting Research Scientist.
National Center for Biomedical Ontology (NCBO), Department of Philosophy, State
University of New York (SUNY) at Buffalo and Research Foundation of the State of New
York, March-May 2006
Informatics Consultant, Nervana Inc., Bellevue, WA, Aug-Oct 2006
Ontology Consultant, VenLogic Inc, Seattle, WA Feb-Mar 2001
Ontology Consultant, Anatomy Next, 2015-present
Retired from University of Washington on April 30, 2019

<u>Consultant</u>
Visible Embryo Project, Oregon Health Sciences University, 1999
http://www.visembryo.com/

Dental School Informatics, University of Washington, 1999-2012

Craniofacial Malformation Research, Children's Orthopedic Hospital, 2002

MedOrder Inc., 2003 (defunct)

Nervana Inc., 2006 (defunct)

VenLogic Inc., 2007
https://www.venlogic.com/vl2/resources/main.php?url=resources

Anatomy Next, Exonicus Inc., 2015-present
https://sketchfab.com/a4s

Elsevier Publishing Company 2017-19

Participant
Kaiser Permanente terminology/ontology workshop, University of Washington School of Medicine, 1999

Digital Human Project, Federation of American Scientists, 2002-2004

Standards and Ontologies for Functional Genomics (SAEL-SOFG) Anatomy Resource, Stanford University, 2004

Terminologia Anatomica Working Group Federative International Committee on Anatomical Terminology (FICAT), 2005-present

Neuroanatomy ontology workshop, Human Brain Project, National Institute of Heatlh (NIH), 2006

Image ontology workshop, National Center for Biomedical Ontology (NCBO), Stanford University, 2006

Immunology ontology workshop, Division of Allergy, Immunology and Transplantation (DAIT), National Institute of Allergy and Infectious Disease (NIAID), 2006

Advance team, Anatomy ontology workshop, NCBO, University of Washington, 2006

Scientific Committee Member National Center for Ontological Research (NCOR), 2005-07

State University of New York at Buffalo Stanford University Knowledge Representation in Medicine (KR-MED) American Medical Informatics Association (AMIA) Working Group, 2005-2011

Federative International Committee on Informatics in Anatomy (FICIA), International Federation of Associations of Anatomists (IFAA) 2004- present

Programs on Ontologies for Neural Structures (PONS), International Neuroinformatics Coordinating Facility (INCF), 2009-2011

International Conference on Biomedical Ontology (ICBO), 2009-2016

Bio-ontologies SIG, Intelligent Systems for Molecular Biology (ISMB), 2010-2011Referree/Reviewer

Grant reviewer, Bioengineering Research Partnership (BRP), National Institute of Health (NIH), 2006

Consultant, Dorlands' Illustrated Medical Dictionary, 33rd Edition 2020

EDITORIAL RESPONSIBILITIES
Member, Editorial board, Frontiers in Neuroinformatics
Reviewer, The New Anatomist, The Anatomical Record Journal
Reviewer, BMC Bioinformatics Journal
Reviewer, Journal of American Medical Informatics Association (JAMIA)
Reviewer, Proceedings of American Medical Informatics Association (AMIA)
Reviewer, Frontiers in Neuroscience
Reviewer, Journal of Biomedical Informatics (JBI)
Reviewer, Journal of Biomedical Semantics (JBS)
Reviewer, Scientific Reports, Nature Research

Reviewer, Journal of Clinical Anatomy
Reviewer, International Conference on Biomedical Ontolgies (ICBO) Proceedings

PUBLICATIONS

Book chapters

1. Rosse C, Mejino JLV. The Foundational Model of Anatomy Ontology. in: Burger A, Davidson D, Baldock R. (eds.), Anatomy Ontologies for Bioinformatics: Principles and Practice, New York: Springer, 2008. pp 59-117

2. Haendel M, Neuhaus F, Osumi-Sutherland D, Mabee PM, Mejino JLV, Mungall CJ, Smith B. CARO: The Common Anatomy Reference Ontology, in: Burger A, Davidson D, Baldock R. (eds.), Anatomy Ontologies for Bioinformatics: Principles and Practice, New York: Springer, 2008. pp 327-349.Peer-reviewed publications

A. Journal articles

3. Farr AG, Anderson SK, Baddy SC, Mejino JLV. 1988. Selective binding of Dolichos biflorus agglutinin to L3T4-, Lyt-2- thymocytes. Expression of terminal alpha-linked N-acetyl-D-galactosamine residues defines a subpopulation of fetal and adult murine thymocytes. J Immunol. Feb 15;140(4):1014-21.

4. Mejino JLV, Lee MY, Hamilton BH, and Rosse C. 1991. The role of hematogenous and intrinsic precursor cells in lymphocyte production in murine bone marrow and thymus. Am. J. Anat. 192: 232-240.

5. Rosse C, Mejino JL, Modayur BR, Jakobovits R, Hinshaw KP, Brinkley JF. 1998. Motivation and organizational principles for anatomical knowledge representation: the Digital Anatomist Symbolic Knowledge Base. J. Am. Med. Informatics Assoc.5:17-40.

6. Mejino, JL and Rosse C. 1998. The Potential of the Digital Anatomist Foundational Model for assuring consistency in UMLS sources. IN Chute EG (ed): A paradigm shift in health care information systems: clinical infrastructures for the 21st century. JAMIA Symposium Supplement. '98:825-829

7. Mejino, JLV and Rosse C. 1999. Conceptualizations of Anatomical Spatial Entities in the Digital Anatomist Foundational Model. J. Am. Med. Assoc. AMIA ’99 Symp. Suppl. '99: 112-116.

8. Agoncillo, A, Mejino JLV, 1999. Rosse C. Influence of the Digital Anatomist Foundational Model on Traditional Representations of Anatomical Concepts. J. Am. Med. Assoc. AMIA ’99 Symp. Suppl. '99: 2-6.

9. Michael J, Mejino JLV, Rosse C. 2001. The role of definitions in biomedical concept representation. JAMIA Symposium Supplement. '01:463-467.

10. Martin RF, Mejino JLV, Bowden DM, Brinkley JF, Rosse C. 2001. Foundational model of neuroanatomy: its implications for the Human Brain Project. JAMIA Symposium Supplement. '01:438-442.

11. Rosse C, Mejino JLV Jr. 2003. A reference ontology for bioinformatics: the Foundational Model of Anatomy. J Biomed Inform. 36:478-500.

12. Mejino JLV Jr, Agoncillo AV, Rickard KL, Rosse C. 2003. Representing complexity in part-whole relationships within the Foundational Model of Anatomy. Proc AMIA Symp. p.450.

13. Cook DL, Mejino JLV Jr, Rosse C. 2004. Evolution of a Foundational Model of Physiology: Symbolic Representation for Functional Bioinformatics. In Proceedings: MedInfo 2004 pp 336-340, San Francisco, CA.

14. Rickard KL, Mejino JLV Jr, Martin RF, Agoncillo AV, Rosse C. 2004. Problems and Solutions with Integrating Legacy Terminologies into Evolving Knowledge Bases. In Proceedings: MedInfo, pp 420-424, San Francisco, CA .

15. Detwiler LT, Chung E, Li A, Mejino JLV Jr, Agoncillo AV, Brinkley JF, Rosse C. 2004. A Relation-Centric Query Engine for the Foundational Model of Anatomy. In Proceedings: MedInfo, pp341-345, San Francisco, CA.

16. Noy, NF, Mejino JLV, Musen MA and C. Rosse. 2004. 'Pushing the envelope: challenges in frame-based representation of human anatomy'. Data &Knowledge Engineering 48:335-359.

17. Mejino JLV Jr, Rosse C. 2004. Symbolic modeling of structural relationships in the Foundational Model of Anatomy. In Proceedings: First International Workshop on Formal Biomedical Knowledge Representation (KR-MED 2004), Whistler Mountain, B.C., Canada; pp 48-62.

18. Cook DL, Mejino JLV, and Rosse C. 2004. The Foundational Model of Anatomy: a template for the symbolic representation of multi-scale physiological functions. Conf Proc IEEE Eng Med Biol Soc. 2004;7:5415-8.

19. Shapiro L, Chung E, Detwiler LT, Mejino JLV, Agoncillo AV, Brinkley JF and Rosse C. 2005. Processes and problems in the formative evaluation of the Foundational Model of Anatomy knowledge base. J. Am. Med. Informatics Assoc 12(1):35-46.

20. Smith B, Mejino JLV, Schulz S, Kumar, A and Rosse C. 2005. Anatomical information science. COSIT '05, pp.149-164, Ellicottville, New York.

21. Rosse C, Kumar A, Mejino JLV, Cook DL, Detwiler LT, and Smith B. 2005. A strategy for improving and integrating biomedical ontologies. Proc. AMIA Symp 2005, Washington DC.

22. Mejino JLV, Rubin DL, Brinkley JF. 2008. FMA RadLex: An Application Ontology of Radiological Anatomy derived from the Foundational Model of Anatomy Reference Ontology. Proc. AMIA Symp 2008:465-469.

23. Cook DL, Mejino JLV, Neal ML and Gennari JH. 2008. Bridging Biological Ontologies and Biosimulation: The Ontology of Physics for Biology. Proc AMIA Symp. pp136-140.

24. Kalet I, Mejino JLV, Wang V, Whipple M and Brinkley JF. 2009. Contentspecific auditing of large scale anatomy ontology. J Biomed Inform 42(3):pp

540-549.

25. Gu H, Wei D, Mejino JLV, Elhanan G. 2009. Relationship auditing of the FMA Ontology. J. Biomed. Inform. Vol 42, Issue 3, pp 550-557.

26. Cook DL, Mejino JLV, Neal ML, Gennari JH. Composite annotations: requirements for mapping multiscale data and models to biomedical ontologies. Conf Proc IEEE Eng Med Biol Soc. 2009: 2791-4. Doi: 10.1109/IEMBS.2009.5333830.

27. Turner JA, Mejino JLV, Brinkley JF, Detwiler LT, Lee HJ, Martone ME and Rubin DL. 2010. Application of neuroanatomical ontologies for neuroimaging data annotation. Frontiers in Neuroinformatics 4(10), 1-12.

28. Puget A, Mejino JLV, Detwiler LT, Franklin JD, Brinkley JF. 2012. Spatialsymbolic query engine in anatomy. Methods of Information in Medicine 51(6): 463-478.

29. Steinert-Threlkeld S, Ardekani S, Mejino JLV, Detwiler LT, Brinkley JF, Halle M, Kikinis R, Winslow RL, Miller MI, Ratnanather JT. 2012. Ontological labels for automated location of anatomical shape differences. J Biomed Inform. 2012 Jun;45(3):522-7. doi: 10.1016/j.bi.2012.02.013.

30. Zhang GQ, Luo L, Ogbuji C, Joslyn C, Mejino J, Sahoo SS. 2012. An analysis of multi-type relational interactions in FMA using graph motifs with disjointness constraints. AMIA Annu Symp. Proc. 2012;2012:1060-9.

31. Mejino JLV, Travillian, RS, Cox, TC, Shapiro, LG, Brinkley JF. 2013. Human development domain of the Ontology of Craniofacial Development and Malformation. CEUR Workshop Proc. 2013 July;1060: 74–77. PMID: 28261023.

32. Luo L, Mejino JLV, Zhang GQ. 2013. An analysis of FMA using structural selfbisimilarity. J Biomed Inform. 2013 Jun;46(3):497-505. doi: 10.1016/j.bi.2013.03.005.

33. Brinkley JF, Borromeo C, Clarkson M, Cox TC, Cunningham MJ, Detwiler LT, Heike CL, Hochheiser H, Mejino JLV, Travillian RS and Shapiro LG. 2013. The Ontology of Craniofacial Development and Malformation for Translational Craniofacial Resarch. AM J Med Genet C Semin Med Genet.2013 Nov;163C(4):232-45. doi: 10.1002/ajmg.c.31377.

34. Brinkley JF, Mejino JLV, Detwiler LT, Travillian RS, Clarkson M, Cox T, Heike C, Cunningham M, Hochheiser H and Shapiro LG. 2013. Towards understanding craniofacial abnormalities: the ontology of Craniofacial Development and Malformation. AMIA Jt. Summits Transi Sci.Proc. 2013 Mar 18;2013:20

35. Wang KH, Heike CL, Clarkson MD, Mejino JLV, Brinkley JF, Tse RW, Birgfeld CB, Fitzsimons DA and Cox TC. 2014. Evaluation and integration of disparate classification systems for clefts of the lip. Front Physiol.2014 May 14;5:163. doi: 10.3389/fphys.2014.00163.

36. Nichols BN, Mejino JLV, Detwiler LT, Nilsen TT, Martone ME, Turner JA, Rubin DL, Brinkley JF. 2014. Neuroanatomical domain of the Foundational Model of Anatomy ontology. J. Biomed. Semant., 5:1 (doi:10.1186/2041-1480-5-1)

37. Wang KC, Salunkhe AR, Morison JJ, Lee PP, Mejino JLV, Detwiler, LT, Vrinkley JF, Siegel EL, Rubin DL and Carrino JA. 2015. Ontology-based image navigation: exploring 3.0-T MR neurography of the brachial plexus using AIM and RadLex. Radiographics. 2015 Jan-Feb;35(1):142-51. doi: 10.1148/rg.351130072

38. Mejino JLV Jr, Detwiler LT, Cox TC, Brinkley JF. 2016. Multi-species Ontologies of the Craniofacial Musculoskeletal System. CEUR Workshop Proc. 2016 Aug;1747. pii: http://ceur-ws.org/Vol-1747/IP03_ICBO2016.pdf PMID:28217040

39. Detwiler LT, Mejino JLV, and Brinkley JF. 2016. From frames to OWL 2:Converting the Foundational Model of Anatomy. Artif Intell Med. 2016

May;69:12-21.doi: 10.1016.04.003.

40. Elhanan G, Ochs C, Mejino JLV, Liu H, Mungall CJ, and Perl Y. 2017. From SNOMED CT to Uberon: Transferability of evaluation methodology between similarly structured ontologies. Artif Intell Med. 2017 May 19. Pli: S0933-3657(16)30374-8. Doi: 10.1016/j.artmed.2017.05.002

41. Luo L, Tong L, Zhou X, Mejino JLV, Ouyang C and Liu Y. Evaluating the granularity balance of hierarchal relationships within large biomedical terminologies towards quality improvement. J. Biomed Inform 2017;75:129-137.

42. Jung H, Law A, Grunblatt E, Wang LL, Kusano A, Mejino JLV, Whipple ME. 2017. Development of a Novel Markov Chain Model for the Prediction of Head and Neck Squamous Cell Carcinoma Dissemination. AMIA Annu Symp. Proc 2017 Feb 10;2016:1832-1839.

B. Abstracts

1. Mejino Jr., J. L. V. and C. Rosse 1990 Thymocyte lineages derived from hematogenous and intrinsic progenitors. Exp. Hematol. 18: 587

2. Rosse, C., J. L. V. Mejino, Jr. 1990 Thymic regeneration following corticosteroid-induced involution effected by intrathymic T cell progenitors. Exp. Hematol. 18: 585.

3. Rosse, C., Mejino, J.L. and Brinkley, J.F. 1997. The Digital Anatomist Symbolic Knowledge Base: an approach toward standards in anatomical knowledge representation. J. Am. Med. Informatics Assoc.

4. Brinkley JF, Albright EM, Kim S, Mejino JLV, Shapiro LG, Rosse C. 2000. Visible Human, Construct Thyself: The Digital Anatomist Dynamic Scene Generator. In: The Third Visible Human Project Conference Proceedings. Bethesda: NLM, 27-28.

5. Rosse C, Mejino JLV, Shapiro LG, Brinkley JF. 2000. Visible Human, Know Thyself: The Digital Anatomist Structural Abstraction. In: The Third Visible Human Project Conference Proceedings. Bethesda: NLM; 85-86.

6. Mejino JLV, Noy NF, Musen M, Rosse C. 2001. Representation of structural relationships in the Foundational Model of anatomy. JAMIA Symposium Supplement. '01:937p.

7. Martin RF, Mejino JLV Jr, Bowden DM, Brinkley JF, Rosse C. 2001. A next-generation knowledge source: foundational model of neuroanatomy. Soc.Neurosci. Abstr., Vol. 27, Program No. 23.48p.

8. Rosse C, Mejino JLV. 2001. The Foundational Model of anatomy. Clin Anat. 14:463.

9. Agoncillo AV, Mejino JLV, Rosse C. 2001. Correlation of the Foundational Model with traditional sources of anatomical knowledge. Clin Anat. 14:453p.

10. Mejino JLV, Rosse C. 2001. Anatomical relationships in the Foundational Model of anatomy. Clin Anat. 14:460p.

11. Agoncillo AV, Mejino JLV, Rickard KL, Detwiler LT, Rosse CR. 2003. Proposed Classification of Cells in the Foundational Model of Anatomy. AMIA Annu Symp Proc. 2003:775.

12. Martin RF, Rickard KL, Mejino JLV Jr, Agoncillo AV, Brinkley JF, Rosse C. 2003. The Evolving Neuroanatomical Component of the Foundational Model of Anatomy. Proc AMIA Annu Symp Proc. 2003:438.

13. Detwiler LT, Mejino JLV, Rosse C, Brinkley JF. 2003. Efficient Webbased Navigation of the Foundational Model of Anatomy. AMIA Annu Symp Proc . 2003:829.

14. Mejino, JLV, Martin RF, Detwiler LT and Brinkley JF. 2007. Challenges

in Reconciling Different Views of Neuroanatomy in a Reference Ontology of Anatomy. AMIA Annu Symp Proc. 2007

15. Franklin JD, Mejino JLV, Detwiler, LT and Brinkley JF. 2008. Web Service Access to Semantic Web Ontologies. AMIA Annu Symp Proc. 2008:946.

16. Mejino JLV, Detwiler LT, Turner JA, Martone MA, Rubin DL and Brinkley JF. 2010 Enabling RadLex with the Foundational Model of Anatomy Ontology to Organize and Integrate Neuro-imaging Data. AMIA Annu Symp Proc. 2010:1171.

17. Brinkley JF, Turner JA, Detwiler LT, Mejino JLV, Martone ME, and Rubin DL. 2010. Intelligent Queries over BIRN Data using the Foundational Model of Anatomy and a Distributed Query-based Data Integration System. AMIA Annu Symp Proc. 2010:989.

18. Nichols N, Perlmutter A, Mejino JLV and Brinkley JF. 2010. Representing Neural Connectivity in the Foundational Model of Anatomy Ontology. AMIA Annu Symp Proc.2010

19. Mejino JLV, Shapiro LG, Brinkley JF. 2013. An Ontology for Human Craniofacial Development. Annu Symp Proc. 201320. Mejino JLV, Detwiler LT, Brinkley JF. 2015. Ontology of Craniofacial Musculoskeletal System. Annu Symp Proc. 2015

21. Mejino JLV, Detwiler LT, Cox TC, Brinkley JF. Cross-species Mapping of Human and Mouse Craniofacial Structures. Proc. AMIA Symp 2017: 2105.

22. Mejino JLV, Detwiler LT, Cox TC, Cunningham, ML, Brinkley JF. Multi-species Malformation Ontologies. 9th International Conference on Biological Ontology (ICBO) 2018, OHSU.