

Lisa M. Reece, B.S.
Lab Director of Molecular Cytometry

Purdue University
Basic Medical Sciences - School of Veterinary Medicine
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EDUCATION:

1986
El Paso Community College
Medical Technology Program
(President's List for Academic Excellence)
BS Microbiology

1978-1983
University of Texas at El Paso

PROFESSIONAL EXPERIENCE:

July 2005 – Present
Molecular Cytometry Facility
School of Veterinary Medicine, Dept. of Basic Med. Sci.
Bindley Bioscience Ctr./Birck Nanotechnology Ctr.
Purdue Univ., West Lafayette, IN
Lab Director of Molecular Cytometry

May 2003 – May 2005
Molecular Cytometry Unit
Div. of Infectious Dis., Dept. of Internal Med.
Univ. of Texas Medical Branch, Galveston, TX
Assistant Director

1996-2003
Molecular Cytometry Unit
Div. of Infectious Dis., Dept. of Internal Med.
Univ. of Texas Medical Branch, Galveston, TX
Research Associate I

1993-96
Div. of Adult Allergy and Immunology
Dept. of Internal Med.
Univ. of Texas Medical Branch, Galveston, TX
Research Assistant II

1989-93
Molecular Oncogenesis Laboratories
Dept. of Chemical Pathology
Univ. of Texas Medical Branch, Galveston, TX
Research Assistant I

1989
Dept. of Tumor Biology
Univ. of Texas MD Anderson Cancer Center,
Houston, TX
Research Assistant II

1987-89
Dept. of Biological Sciences
Univ. of Texas at El Paso, El Paso, TX
Laboratory Supervisor

1987
American Red Cross
Dept. of Clinical Investigations
William Beaumont Army Medical Center
Ft. Bliss, TX
Laboratory Assistant

1986-87
Quality Control Dept.
Seamless Hospital Products, Inc., El Paso, TX
Assistant Microbiologist

1984
Quality Control Dept.
Baltimore Spice Co., Anthony, TX
Assistant Microbiology Technician

1984
Quality Assurance Dept.
American Converters, Inc., El Paso, TX
1981-82
Clinical Laboratory
Providence Memorial Hospital, El Paso, TX

Microbiology Laboratory Technician

Phlebotomist

MEMBERSHIP IN SCIENTIFIC SOCIETIES:**1996-Present**

International Society for Analytical Cytology

HONORS:**2003-2005**

Who's Who in Science and Engineering

2002-2005

Who's Who of American Women

2001-2005

Who's Who in America

SKILLS:**Lab Directorship:**

- Supervise personnel in all aspects of daily lab management and experiments - train and evaluate students and personnel
- Help design and carry out experiments for all grant funded projects
- Act as "bridging personnel" to aid in explanations and experimental planning between technological/biological staff and multidisciplinary collaborators
- Perform salary and budget forecasts, updates, expenditures
- Safety Officer – oversee inventories of all chemicals, reagents, cells. HAZCOM Trainer for all lab personnel and for the Div. of Inf. Dis. at UTMB. Biological safety officer for Birck Nanotechnology Center and Bloodborne Pathogens trainer for both Bindley Bioscience Center and Birck Nanotechnology Center at Purdue.

Flow Cytometry:

- Advanced Flow Cytometry – maintenance, operation and prototyping of the in-house High Resolution Cell Sorter System (HiReCS). Design and execution of advanced FCM analysis and sorting experiments with emphasis on single cell sorting. Advanced data analysis using existing commercial software and development of new data mining software for FCS, image, and microarray analysis data

Computing:

- LabVIEW™ v. 7.0 Programmer – trained at National Instruments in Basics I & II courses, responsible for writing prototypical GUI interfaces for MCU
- Assist in development and beta-testing of in-house data analysis software
- Working knowledge of C, C++, HTML and Pascal languages
- Webmaster for Unit's Internet website
- Server Administrator - Server administrator for Unit's Windows print and Apache file servers. Administrator of Unit's online Data Library. Member of LAN Administrator's Group at UTMB.
- Advanced user of MS Office Suites
- Advanced user of WinMidi, WinList, ModFit LT and other commercial FCM analysis software
- Advanced user of RefManager, EndNote, browsers, image analysis software, web authoring software, molecular biological software, Macromedia Studio MX
- MCU hardware support – build PC desktop systems
- Technical Writing - writing and proofing manuscripts

Prototyping:

- Helping to develop LabVIEW™ GUI and revising microchip channel array for BioMEMS microfluidics cell sorter
- Helped to design GUI for Subtractive Clustering Analysis program
- Design hardware upgrades and modifications for existing HiReCS

Teaching:

- MCF Flow Theory – Design and teach course on flow cytometry theory, protocols, listmode analysis, and FCM analysis to all the Unit's students and new personnel
- Designed and helped to implement Biosafety Training for Birck Nanotechnology Center BioMEMS personnel at Purdue.

Lab Techniques:

Flow Cytometry
 Cell Biology & Immunology
 Molecular Biology
 Tissue Culture
 Biochemistry

Histology
 Protein Chemistry
 Bacteriology
 Phlebotomy
 Animal Science

INVITED TALKS:

- **Reece, L., Fontenot A., Leary, J.F.** "High-Throughput Instrumentation for Flow Cytometry and Cell Sorting", 20th Annual Houston Conference on Biomedical Engineering Research, Houston, TX, 3-4 April 2003
- **Reece, L., Leary, J.F.** "High-Throughput Instrumentation for Sorting Stem Cells and Some Ethics Behind the Research", The Dimensions and Directions Discussion sponsored by the Galveston Community College chapter of Phi Theta Kappa, Galveston, TX, 6 Feb. 2004

BIBLIOGRAPHY:**A. ARTICLES IN PEER-REVIEWED JOURNALS:**

1. Arenaz, P., **Bitticks, L.**, Pannell, K., Garcia, S. "Genotoxic Potential of Crown Ethers in Salmonella typhimurium", *Mutagenesis* 4(6): 437-8, 1989
2. Arenaz, P., **Bitticks, L.**, Pannell, K.H., Garcia, S. "Genotoxic Potential of Crown Ethers in Mammalian Cells: Induction of Sister Chromatid Exchanges", *Mutation Research* 280:109-15, 1992
3. Sim, T.C., Hilsmeier, K.A., **Reece, L.M.**, Grant, J.A., Alam, R. "Interleukin-1 Receptor Antagonist Protein Inhibits the Synthesis of IgE and Proinflammatory Cytokines by Allergen Stimulated Mononuclear Cells", *American Journal of Respiratory Cell and Molecular Biology* 11(4): 473-9, 1994
4. Sim, T.C., **Reece, L.M.**, Hilsmeier, K.A., Grant, J.A., Alam, R. "Secretion of Chemokines and Other Cytokines in Allergen-induced Nasal Responses: Inhibition by Topical Steroid Treatment", *American Journal of Respiratory Critical Care Medicine* 152: 927-33, 1995
5. Weido, A.J., **Reece, L.M.**, Alam, R., Cook, C.K., Sim, T.C. "Intranasal Fluticasone Propionate Inhibits Recovery of Chemokines and Other Cytokines in Nasal Secretions in Allergen-induced Rhinitis", *Annals of Allergy, Asthma, and Immunology* 77(5): 407-15, 1996
6. Rajakulasingham, Karelesingham, Durham, Stephen R., O'Brien, Fiona, Humbert, Mark, Barata, Luis T., **Reece, Lisa**, Kay, A. Barry, Grant, J. Andrew. "Enhanced Expression of High-Affinity IgE Receptor (FcεRI) α-Chain in Human Allergen-Induced Rhinitis with Co-localization to Mast Cells, Macrophages, Eosinophils, and Dendritic Cells", *Journal of Allergy and Clinical Immunology* 100(1): 78-86, July 1997
7. Leary, J.F., He, F., **Reece, L.N.** "Detection and Isolation of Single Tumor Cells Containing Mutated DNA Sequences". *SPIE Proceedings Systems and Technologies for Clinical Diagnostics and Drug Discovery II* SPIE 3603: 93-101, 1999.
8. Leary, J.F., McLaughlin, S.R., **Reece, L.N.**, Rosenblatt, J.I., Hokanson, J.A. "Real-time Multivariate Statistical Classification of Cells for Flow Cytometry and Cell Sorting: A Data Mining Application for Stem Cell Isolation and Tumor Purging" *SPIE* 3604: 158-169, 1999.
9. Chen, K-H., **Reece, L.**, Leary, J.F.: "Mitochondrial glutathione modulates TNF-α-induced endothelial cell dysfunction". *Free Radical Biology & Medicine* 27: 100-109, 1999.
10. Leary, J.F., McLaughlin, S.R., **Reece, L.M.** "Application of a Novel Data Mining Technique to Cytometry Data". *SPIE* 3921: 84-89, 2000
11. Leary, J.F., **Reece, L.M.** "Application of Advanced Cytometric and Molecular Technologies to Minimal Residual Disease Monitoring". *SPIE* 3913: 36-44, 2000.
12. Leary, J.F., **Reece, L.N.**, Szaniszlo, P., Prow, T., Wang, N.: "High-Throughput Cell Analysis and Sorting Technologies for Clinical Diagnostics and Therapeutics". *SPIE* 4255: 16-27, 2001.
13. Leary, J.F., Hokanson, J.A., Rosenblatt, J.I., **Reece, L.N.**: "Real-Time Decision-Making for High-Throughput Screening Applications". *SPIE* 4260: 219-225, 2001
14. Leary, J.F., **Reece, L.M.**, Hokanson, J.A., Rosenblatt, J.I. "Advanced "Real-time" Classification Methods for Flow Cytometry Data Analysis and Cell Sorting". *SPIE* 4622: 204-210, 2002
15. Leary, J.F., Szaniszlo, P., Prow, T., **Reece, L.M.**, Wang, N., Asmuth, D.M. "The Importance of High-Throughput Cell Separation Technologies for Genomics/Proteomics-Based Clinical Therapeutics". *SPIE* 4625: 1-8, 2002.
16. Yang, X., Li, X. Li, Prow, T., **Reece, L.M.**, Bassett, S., Luxon, B., Herzog, N.K., Aronson, J., Shope, R., Leary, J.F., Gorenstein, D. "Immunofluorescence Assay and Flow-Cytometry Selection of Bead-bound Aptamers". *Nucleic Acids Research* 31 (10): 1-8, 2003.
17. Asmuth, D.M., Wang, N., Ying, L., Li, X.D., **Reece, L.**, Terry, N.H.A., Pollard., R.B., Nokta, M., Leary, J.F., White, A.R. "Estimating Cell Death in G2M Using Bivariate BrdUrd/DNA Flow Cytometry". *Cytometry: Part A*: 66A 32-40, 2005.
18. Asmuth, D.M., Wang, N., Ying, L., Li, X.D., **Reece, L.**, Terry, N.H.A., Pollard., R.B., Nokta, M., Leary, J.F., White, A.R. "Cell Cycle Kinetic Dysregulation in HIV-Infected Normal Lymphocytes". *Cytometry: Part A*: 66A 41-51, 2005.

19. Szaniszló, P.E., Wang, N., Sinha, M., **Reece, L.M.**, Van Hook, J.W., Luxon, B.A., Leary, J.F. "Getting the Right Cells to the Array: Gene Expression Microarray Analysis of Cell Mixtures and Sorted Cells". *Cytometry* 59A (2): 191-202, June 2004.
20. Prow, T.W., Salazar, J.H., Rose, W.A., Smith, J.N., **Reece, L.M.**, Fontenot, A.A., Wang, N.A., Lloyd, R.S., Leary, J.F. "Nanomedicine-Nanoparticles, Molecular Biosensors and Targeted Gene/Drug Delivery for Combined Single-Cell Diagnostics and Therapeutics." *SPIE* 5318: 1-11, 2004
21. Leary, J.F., **Reece, L.M.**, Yang, X., Gorenstein, D. "High-Throughput Flow Cytometric Screening of Combinatorial Chemistry Bead Libraries for Proteomics and Drug Discovery". *Advanced Biomed. And Clinical Diagnostic Systems III*, SPIE, 5692: 216-223, 2005.
22. Prow, T.W., Rose, W.A., Wang, N., **Reece, L.M.**, Lvov, Y., Leary, J.F. "Biosensor-Controlled Gene Therapy/Drug Delivery with Nanoparticles for Nanomedicine". *Advanced Biomed. And Clinical Diagnostic Systems III*, SPIE, 5692: 199-208, 2005.
23. Szaniszló, P., Rose, W.A., Wang, N., **Reece, L.M.**, Tsulaia, T.V., Hanania, E.G., Elferink, C.J., Leary, J.F. "Scanning Cytometry with a LEAP: Laser-Enabled Analysis and Processing of Live Cells In Situ". *Cytometry Special Issue*. Accepted Dec. 2006.

B. PUBLISHED ABSTRACTS:

1. **Reece, Lisa M.**, Sim, T. "Increased Levels of IL-13 and MCP-1 in Nasal Secretions Following Allergen Challenge". 52nd Annual Meeting of the American Academy of Allergy Asthma & Immunology, New Orleans, LA March 1996.
2. Corio, M.A., McLaughlin, S.R., **Reece, L.M.**, Leary, J.F. A Computer-Controlled Three-Color Compensation Device for Multicolor Flow Cytometry. Presented at the XIX International Congress of the International Society for Analytical Cytology, Colorado Springs, CO, 28 February - 5 March 1998, *Cytometry (Supplement 9)*: 133, 1998.
3. Hokanson, J.A., Rosenblatt, J.I., McLaughlin, S.R., **Reece, L.**, Leary, J.F. "Multivariate Statistical Classification Techniques for Flow Cytometry and Cell Sorting – Application to a Model System for High-Speed Stem Cell Sorting/Tumor Cell Purging". Presented at the XIX International Congress of the International Society for Analytical Cytology, Colorado Springs, CO, 28 February - 5 March 1998, *Cytometry (Supplement 9)*: 125, 1998.
4. Leary, J.F., McLaughlin, S.R., **Reece, L.N.**, Rosenblatt, J.I., Hokanson, J.A. "Real-Time Multivariate Statistical Classification of Cells for Flow Cytometry and Cell Sorting: Application to Stem Cell Isolation and Tumor Purging". Presented at the BIOS'99 International Biomedical Optics Symposium of the Optical Society of America (SPIE), San Jose, CA January 23-29, 1999.
5. Leary, J.F., He, F., **Reece, L.N.** "Detection and Isolation of Single Tumor Cells Containing Mutated DNA Sequences". Presented at the BIOS'99 International Biomedical Optics Symposium of the Optical Society of America (SPIE), San Jose, CA January 23-29, 1999.
- Leary, J.F. **Reece, L.N.**, Nichols, M., Chennupati, K. "IS-PCR by Multiparameter Flow Cytometry". Presented at the 7th International Conference and Workshops on Molecular Morphology Santa Fe, NM January 10-15, 1999.
6. Leary, J.F., McLaughlin, S.R., **Reece, L.M.** "Application of a Novel Data Mining Technique to Cytometry Data". Presented at the BIOS 2000 International Biomedical Optics Symposium, San Jose, CA January 22-28, 2000.
7. Leary, J.F., **Reece, L.M.** "Application of Advanced Cytometric and Molecular Technologies to Minimal Residual Disease Monitoring". Presented at the BIOS 2000 International Biomedical Optics Symposium, San Jose, CA January 22-28, 2000.
8. Leary, J.F., Szaniszló, P., He, F., **Reece, L.M.** "Some New High-Throughput Technologies for Delivery of Specific Cell Subpopulations to Gene Microarrays". Presented at the Eighteenth Annual Houston Conference on Biomedical Engineering Research, Houston, TX February 10-11, 2000
9. Leary, J.F., McLaughlin, S.R., **Reece, L.M.**, Rosenblatt, J.I., Hokanson, J.A. "Real-time Statistical Classifications for High Resolution Sorting of Rare Cells". Presented at the XXth Congress of the International Society for Analytical Cytology in Montpellier, France May 20-25, 2000.
10. McLaughlin, S.R., **Reece, L.M.**, Smith, J., Leary, J.F. A New Data Mining/Knowledge Discovery Method for Flow Cytometry". Presented at the XXth Congress of the International Society for Analytical Cytology in Montpellier, France May 20-25, 2000.
11. **Reece, L.M.**, Szaniszló, P., Chennupati, S.K., Nichols, M., Leary, J.F. "Simultaneous Immunofluorescence and *in-situ* PCR for Determination of HIV Viral Loads in Immune Cell Subsets". Presented at the XXth Congress of the International Society for Analytical Cytology in Montpellier, France May 20-25, 2000.
12. He, F., **Reece, L.M.**, Leary, J.F. "Detection and Isolation of Rare Metastatic Tumor Cell Clones for Subsequent Analysis of Tumor Suppressor Gene Mutations by Single-Cell DNA Sequencing". Presented at the XXth Congress of the International Society for Analytical Cytology in Montpellier, France May 20-25, 2000.
13. Leary, J.F., Hokanson, J.A., Rosenblatt, J.I., **Reece, L.N.** "Real-Time Decision-Making for High-Throughput-Screening Applications". Presented at the SPIE Photonics West Symposium, San Jose, CA January, 24-25, 2001.
14. Leary, J.F., **Reece, L.N.**, Szaniszló, P., Prow, T., Wang, N. "High-Throughput Cell Analysis and Sorting Technologies for Clinical Diagnostics and Therapeutics". Presented at the SPIE Photonics West Symposium, San Jose, CA January, 21-22, 2001.

15. Leary, J.F., **Reece, L.M.**, Hokanson, J.A., Rosenblatt, J.I. "Advanced 'Real-time' Classification Methods for Flow Cytometry Data Analysis and Cell Sorting". Presented at SPIE 2002 Photonics West Symposium in San Jose, CA January 22-25, 2002.
16. Leary, J.F., Szaniszlo, P., Prow, T., **Reece, L.M.**, Wang, N., Asmuth, D.M. "The Importance of High-Throughput Cell Separation Technologies for Genomics/Proteomics-Based Clinical Therapeutics". Presented at SPIE 2002 Photonics West Symposium in San Jose, CA January 22-25, 2002.
17. Leary, J.F., Szaniszlo, P., Prow, T., **Reece, L.M.**, Yang, X-B, Bassett, S.E., Li, X, Gorenstein, D.G. "Microgenomics and Proteomics for Drug Discovery". Presented at the Pittcon 2003, Orlando, FL March 9-14, 2003.
18. Prow, Tarl, Rijnbrand, Rene, Wang, Nan, Salazar, Eddie, Smith, Jacob, Fontenot, Andrea, **Reece, Lisa M.**, Leary, James. "Nanomedicine: Nanoparticle Delivered Molecular Sensors for Individual Cell Therapy". Presented at 20th Annual Houston Conference on Biomedical Engineering Research 2003, Houston, TX April 3-4, 2003.
19. Szaniszlo, Peter, **Reece, Lisa M.**, Smith, Jacob N., Wang, Nan, Van Hook, James W., Luxon, Bruce A., Leary, James F. "Gene Expression Microarray Analysis of Cell Mixtures and Sorted Cells". Presented at 20th Annual Houston Conference on Biomedical Engineering Research 2003, Houston, TX April 3-4, 2003.
20. Smith, Jacob, **Reece, Lisa M.**, Leary, James F. "Subtractive Clustering Analysis (SCA): A Novel Data Mining Technique for Flow Cytometric Data Files". Presented at 20th Annual Houston Conference on Biomedical Engineering Research 2003, Houston, TX April 3-4, 2003.
21. **Reece, Lisa**, Fontenot, Andrea, Leary, James. "High-Throughput Instrumentation for Flow Cytometry and Cell Sorting". Presented at 20th Annual Houston Conference on Biomedical Engineering Research 2003, Houston, TX April 3-4, 2003.
22. Yang, X., Li, X., Prow, T.W. **Reece, L.M.**, Bassett, S.E., Luxon, B.A., Herzog, N.K., Aronson, J. Shope, R.E., Leary, J.F., Gorenstein, D.G. "High Throughput Screening of Proteomics "Bead-Chip" Libraries for Drug Discovery". Presented at the 1st International Cytomics Conference, Coldra Woods, Newport, Wales, United Kingdom. May 6-9, 2003
23. Yang, X., Li, X. Li, Prow, T., **Reece, L.M.**, Bassett, S., Luxon, B., Herzog, N.K., Aronson, J., Shope, R., Leary, J.F., Gorenstein, D. "Immunofluorescence Assay and Flow-Cytometry Selection of Bead-bound Aptamers". *Nucleic Acids Res.*, 2003 [Epub ahead of print], *BioTechniques*: 35-1, p. 17, July 2003.
24. Leary, J.F., Yang, X.B., **Reece, L.**, Fontenot, A., Luxon, B.A., Gorenstein, D. "High Throughput Flow Cytometric Screening of Combinatorial Chemistry Bead Libraries for Proteomics and Drug Discovery". Presented at the XXIIth Congress of the International Society for Analytical Cytology in Montpellier, France May 22-27, 2004.
25. Prow, T., Salazar, J., Rose, W., Smith, J.N., **Reece, L.**, Fontenot, A., Wang, N., Leary, J.F. "Nanomedicine, Nanoparticles, Molecular Biosensors, and Targeted Gene/Drug Delivery". Presented at the XXIIth Congress of the International Society for Analytical Cytology in Montpellier, France May 22-27, 2004.
26. Szaniszlo, P., Smith, J.N., Rosenblatt, J.I., Wang, N., **Reece, L.**, Koller, M., Van Hook, J., Luxon, B.A., Simmons, A., Leary, J.F. "Distortion of Gene Expression Profiles in Microgenomics". Presented at the XXIIth Congress of the International Society for Analytical Cytology in Montpellier, France May 22-27, 2004.
27. Smith, J.N., Prow, T., **Reece, L.**, Fontenot, A., Salazar, E., Wang, N., Rose, W., Szaniszlo, P., Leary, J.F. "Subtractive Clustering Analysis: A Novel Data Mining Method for Finding Cell Subpopulations". Presented at the XXIIth Congress of the International Society for Analytical Cytology in Montpellier, France May 22-27, 2004.
28. Leary, J. F., Yang, X., **Reece, L.**, Gorenstein, D. "High-throughput Flow Cytometric Screening of Combinatorial Chemistry Bead Libraries for Proteomics and Drug Discovery". Presented at SPIE 2005 Photonics West Symposium in San Jose, CA January 22-27, 2005.
29. Prow, T., Rose, W., **Reece, L.**, Leary, J.F. "Biosensor-Controlled Gene Therapy/Drug Delivery with Nanoparticles for Nanomedicine". Presented at SPIE 2005 Photonics West Symposium in San Jose, CA January 22-27, 2005.
30. Szaniszlo, P., Wang, N., Rose, W., **Reece, L.**, Leary, J.F. "High Throughput Technologies for Cytomics: Gene Array Analyses of Cell Subpopulations". Presented at SPIE 2005 Photonics West Symposium in San Jose, CA January 22-27, 2005.
31. Smith, J., **Reece, L.**, Szaniszlo, P., Leary, R., Leary, J.F. "Subtractive Clustering Analysis: A Novel Data Mining Method for Finding Cell Subpopulations". Presented at SPIE 2005 Photonics West Symposium in San Jose, CA January 22-27, 2005.
32. Leary, J.F., Rose, W.A., Prow, T.W., Wang, N., **Reece, L.M.**, Lvov, Y. "Bio-Sensor Controlled Gene Therapy/Drug Delivery with Nanoparticles for Nanomedicine". Presented at Molecular Medicine Symposium, Houston, TX February 21-22, 2005.