MAYA STYNER

Education and Professional certifications

- Fellowship, University of North Carolina at Chapel Hill (UNC-CH), 7/2007-6/2010, Endocrinology and Metabolism
- Thyroid ultrasound and ultrasound guided FNA certification by AACE, Endocrine University, Rochester, MN, 03/2010
- ISCD Certified Clinical Densitometrist (CCD), 03/ 2010
- Residency, UNC-CH, 2007, Internal Medicine
- American Board of Internal Medicine certification, 2007
- M.D., UNC-CH, 2002
- B.S. with Honors, UNC-CH, 1997, Biology

Research and prior Training

- BIRCWH scholar, UNC-CH, institutional career development award, 7/2010- c
    - Studying the effects of exercise on the health of bone marrow derived mesenchymal stem cells
- Fellowship Research Training Grant Recipient, UNC-CH Department of Medicine, Division of Endocrinology, P.I. Janet Rubin, 7/2007-6/2010
    - Studying the role of prostaglandins in mesenchymal stem cell differentiation
- Residency Clinical Research Project, UNC-CH Department of Medicine, Division of Endocrinology, P.I. John Buse
    - Analyzed the effect of particulate matter on vascular indices in patients with type 2 diabetes mellitus
- Resident physician, Kreisspital Muri, Switzerland, 02/2004-06/2004
- Research associate, University of Bern, Department of Clinical Research, P.I.s Seibold and Stroka, 07/2002-01/2004
    - Characterized hypoxia inducible factor-1 target genes in-vivo in the setting of systemic hypoxia
    - Analyzed the anti-Saccharomyces cervisiae antibodies (ASCA) in Crohn's disease
- Pre-doctoral Intramural Research Training Award, National Eye Institute, National Institutes of Health, P.I .Gery, 1997-1998
    - Researched the effects of linomide on endotoxin-induced Uveitis
- Undergraduate Research, UNC-CH Genetics and Molecular Biology laboratory, P.I. Searles, 1996-1997
    - Investigated recognition of pre-mRNA for splicing in a Drosophila in-vitro splicing system.
- Biomedical Research Summer Intern, National Institutes of Health, P.I. Gentelmann, Summer 1993 and 1994
    - Research Projects in cell and molecular biology, summer lecture series, poster presentations

Honors and Awards:

- Van Wyk Award, April 2010, Endocrinology Fellowship Highest Scholarly Achievement in 2009
- James M. Johnston Scholarship, merit-based scholarship for undergraduate education, 1993-1997
- Pre-doctoral Intramural Research Training Award, National Institutes of Health, 1997-1998

Bibliography

1. Case N, Thomas J, Sen B, Styner M, Xie Z, Galior K, and Rubin J. (2011) Mechanical Regulation of GSK3β in mesenchymal stem cells is dependent on AKT serine-473 phosphorylation via MTOR complex 2. *J Biol Chem*, in-press.
2. Sen B, Guilluy C, 2, Xie Z, Case N, Styner M, Thomas J, Oguz I, Rubin C, Burridge K, Rubin J. (2011) Mechanically induced focal adhesion assembly amplifies anti-adipogenic pathways in mesenchymal stem cells, *Stem Cells*, in-press.
3. Styner, M., Sen, B., Xie, Z., Case, N., and Rubin, J. (2010) Indomethacin promotes adipogenesis of mesenchymal stem cells through a cyclooxygenase independent mechanism, *J Cell Biochem.*
4. Sen, B., Xie, Z., Case, N., Styner, M., Rubin, C. T., and Rubin, J. (2010) Mechanical signal influence on mesenchymal stem cell fate is enhanced by incorporation of refractory periods into the loading regimen, *J Biomech.*

5. Case, N., Xie, Z., Sen, B., Styner, M., Zou, M., O'Conor, C., Horowitz, M., and Rubin, J. (2010) Mechanical activation of beta-catenin regulates phenotype in adult murine marrow-derived mesenchymal stem cells, *J Orthop Res* 28, 1531-1538.
6. Case, N., Sen, B., Thomas, J. A., Styner, M., Xie, Z., Jacobs, C. R., and Rubin, J. (2010) Steady and Oscillatory Fluid Flows Produce a Similar Osteogenic Phenotype, *Calcif Tissue Int.*
7. Sen, B., Styner, M., Xie, Z., Case, N., Rubin, C. T., and Rubin, J. (2009) Mechanical loading regulates NFATc1 and beta-catenin signaling through a GSK3beta control node, *J Biol Chem* 284, 34607-34617.
8. Schneider, A., Neas, L., Herbst, M. C., Case, M., Williams, R. W., Cascio, W., Hinderliter, A., Holguin, F., Buse, J. B., Dungan, K., Styner, M., Peters, A., and Devlin, R. B. (2008) Endothelial dysfunction: associations with exposure to ambient fine particles in diabetic individuals, *Environmental health perspectives* 116, 1666-1674.
9. Muller, S., Styner, M., Seibold-Schmid, B., Flogerzi, B., Mahler, M., Konrad, A., and Seibold, F. (2005) Anti-Saccharomyces cerevisiae antibody titers are stable over time in Crohn's patients and are not inducible in murine models of colitis, *World J Gastroenterol* 11, 6988-6994.
10. Konrad, A., Rutten, C., Flogerzi, B., Styner, M., Goke, B., and Seibold, F. (2004) Immune sensitization to yeast antigens in ASCA-positive patients with Crohn's disease, *Inflammatory bowel diseases* 10, 97-105.
11. Allenspach, K., Luckschander, N., Styner, M., Seibold, F., Doherr, M., Aeschbach, D., and Gaschen, F. (2004) Evaluation of assays for perinuclear antineutrophilic cytoplasmic antibodies and antibodies to Saccharomyces cerevisiae in dogs with inflammatory bowel disease, *American journal of veterinary research* 65, 1279-1283.
12. Shalev, M[Styner, M]., Ko, A., Gelderman, M. P., Fortin, E., Reed, G., Slavin, S., and Gery, I. (1999) Multiformic modulation of endotoxin effects by linomide, *Clinical immunology* (Orlando, Fla 93, 250-255).

Presentations

- Makonnen E, Styner M. Denosumab for Refractory Lymphoma-Associated Hypercalcemia. Endocrine Society annual meeting, Boston, 2011
- Styner M, Galior K, Case N, Sen B, Xie Z, Thomas J, Rubin J. Attenuation of Adipogenesis by Mechanical Strain Involves Downregulation of C/EBPβ. ASBMR, Toronto, 2010
- Styner M. Sen B, Zou M, Xie Z, Case N, and Rubin J. Inhibitors of cyclooxygenase-2 enhance adipogenesis in mesenchymal stem cells via multiple mechanisms. ASBMR, Denver, 2009
- Sen B, Styner M, Xie Z, Case N, Rubin C and Rubin J. Mechanical loading regulates NFATc1 and b-catenin signaling through a GSK3b control node. ASBMR, Denver, 2009
- Rubin J, Sen B, Xie Z, Case N, Styner M, and Rubin C. Exposure to extremely low magnitude mechanical signals reduces MSC adipogenesis and promotes osteoblastogenesis in vitro. ASBMR, Denver, 2009
- Case N, Xie Z, Sen B, Zou M, Styner M, O'Conor C, Horowitz M and Rubin J. Mechanical Strain Influences Differentiating Adult Murine Mesenchymal Stem Cells. ASBMR, Denver, 2009
- Styner M, Glen K, Bisch-Knaden S, Ayuni E, Beldi G, Joeris A, Candinas D and Stroka D. In-vivo characterization of HIF-1 target gene activation. University of Bern, Switzerland, Day of Clinical Research, 2003
- Baker M, Keogh A, Styner M, Candinas D, Stroka D . Activation of HIF-1 in primary human hepatocytes in response to hypoxia and cytokine stimulation. Annual Meeting of The American Association for the Study of Liver Diseases, Boston, MA, October, 2003
- Baker M, Keogh A, Styner M, Candinas D, Stroka D. Activation of HIF1 in primary human hepatocytes in response to hypoxia and cytokine stimulation. Oxygen and the Cell annual conference, Berlin, Germany, September, 2003
- Luckschander N, Allenspach K,Styner M,Gaschen F,Doherr M,Seibold F. Validation of Serologic Markers of Disease Activity (pANCA and ASCA) in Dogs. American College of Veterinary Internal Medicine (ACVIM) Meeting, Raleigh, NC, 2003
- Shalev M [Styner], Ko A, Gelderman MP, Hung LM, Slavin S and Gery I, The Immunomodulatory Effects of Linomide on Endotoxin Induced Uveitis (EIU), Association for Research in Vision and Ophthalmology (ARVO) 1998 Annual Meeting, Abstract, Fort Lauderdale, Florida, May, 1998.

Teaching record :

Panel reviewer for grant application, TraCS Education Core and Epidemiology 806, Spring 2011

Van Wyk Awardee lecture to the division of Endocrinology at UNC "How does Indomethacin Promote Adipogenesis of Mesenchymal Stem Cells?" April 2010

Lecture to the Department of Orthopaedics "NSAIDs: Bad for Bones?"

- Lecture to faculty, residents, fellows and researchers regarding my research findings, planned for March 2010

Lecture to Endocrinology fellows

- Disorders of phosphorus metabolism, April, 2010

Clinical Case Conference

- Fellow Clinical Case Conference
  - Endocrinology case followed by an in-depth discussion of the relevant medical literature, once to twice per month, 2007-2008

Molecular Endocrinology Journal Club, Division of Endocrinology

- Presentation of a significant recent basic science contribution to the field of Endocrinology twice per year, 2007 to the present

Clinical Journal Club, Division of Endocrinology

- Presentation of relevant recent publications twice per year, 2007- present

Clinical Teaching

- Second year medical student Endocrinology course small group discussions (2008-2010)
- Fourth year medical student Endocrinology case discussions (2009)
- First year medical student panel discussion on the Metabolic Syndrome (2008)
- First year medical student case discussion regarding Cushing's syndrome (Fall of 2008 and 2009)
- Precepting fourth year medical students , endocrinology elective rotation (2009)
- UNC physical medicine and rehabilitation resident conference "Inpatient management of diabetes", UNC internal medicine intern conference "Inpatient management of diabetes in non-ICU patients" (2009)
- Student Preceptorships throughout residency and fellowship, 2004-present

Professional Organizations

- The American Society for Bone and Mineral Research
- Endocrine Society
- American Association of Clinical Endocrinologists
- American Diabetes Association

Journal Reviewer

- *British Journal of Pharmacology*
- *Journal of Cellular Biology*

References

- Janet Rubin, MD, Professor of Medicine, Division of Endocrinology and Metabolism , UNC-CH, janet_rubin@med.unc.edu
- John Buse, MD/PhD, Division Chief, Endocrinology and Metabolism, UNC-CH, Buse, jbuse@med.unc.edu
- Susan Braithwaite, MD, Endocrine Consults and Care, Clinical Professor, University of Illinois at Chicago, susan.s.braithwaite@gmail.com
- Anna Spagnoli, MD, Associate Professor of Pediatrics and Biomedical Engineering, UNC-CH, spagnoa@med.unc.edu
- Robert Devlin, PhD, Senior Scientist , US Environmental Protection Agency (EPA), Devlin.Robert@epamail.epa.gov
- David Ransohoff, MD, Professor of Cancer Epidemiology, Cancer Prevention and Control, UNC-CH, : ransohof@med.unc.edu

Reflective Statement

I am currently in my initial year as a junior faculty in the division of Endocrinology at the University of North Carolina at Chapel Hill. My research is supported by the UNC BIRCWH award and I devote greater than 75% of my time to bench research. In the laboratory, I have recently completed a project investigating the role of cyccloxygenase-2 and prostaglandins in the differentiation of the mesenchymal stem cell. These findings have been published (Styner et al *J*

Cell Biochem 2010). Based on my findings, I have initiated projects looking at the role of the transcription factor C/EBPβ in mechanical regulation of mesenchymal stem cell health. In 2010 in addition to the BIRCWH grant, I submitted a 10K NC TraCS institute grant. In February of 2011, I submitted a K08 Career Development grant proposal to the NIH. My long term goal is to pursue basic and translational research projects investigating basic mechanisms by which exercise is beneficial to the health of the skeleton and beyond. I also wish to maintain an important link to clinical endocrinology and to teaching of fellows, residents and medical students.