MARCELA CASTAÑO GIL
CHEMIST
Age: 26 years old
Nationality: Colombian
Department of Polymer Science
Goodyear Polymer Center, Akron, OH 44325-3909, USA
(330)835-7202. *yc49@zips.uakron.edu*

HIGHLIGHT

Experience in carbocationic polymerizations of isobutylene
Synthesis of Polymers and small molecules
Experience in enzymatic functionalization of some biopolymers
Management of Technology and Innovation Certificate
Languages: native speaker of Spanish, English
International exposure in research environment: U.S.A., Colombia

EDUCATION

2009- Present The University of Akron, Akron, OH
Ph.D. in Polymer Science, current GPA: 3.68
Thesis: "Green Chemistry for nanomedicine"
Advisors: Dr. Judit E. Puskas/ Dr. Mathew Becker.

2011- Present The University of Akron, Akron, OH
College of Business Administration
Certificate Management of Technology and Innovation, current GPA: 3.8

2004 -2009 Universidad de Antioquia, Medellin, Colombia.

B.S in Chemistry. GPA: 3.48

Advisor: Wilson Cardona. Co-advisor: Winston Quiñones

Work title: "Synthesis of pyrones and analogous with Leishmanicidal activity"

RESEARCH EXPERIENCE

The University of Akron, Department of Polymer Science, Akron, OH
Graduate student with Dr. Judit E. Puskas/ Dr. Mathew Becker. 2009 to present.

- Synthesis and functionalization of polymers using enzymatic catalysis for biomedical applications.
- Synthesis of telechelic poly (isobutylenes) using carbocationic polymerization.

Organic Chemistry of Natural Products Group, Universidad de Antioquia, Medellin, Colombia. Junior Researcher. With Dr Fernando Echeverri. 2006-2009

- Characterization of essentials oils by ^{1}H-^{13}C NMR.
- Synthesis Pyrones and analogous with potential Biological activities.

Ecoflora, Medellin, Colombia
Junior Researcher. Dr Sandra Zapata. 2009

- Analysis of Genipa Americana using HPLC.

CONFERENCE PARTICIPATION

Oral presentation

April 2013 Akron Functional Material. "Enzyme-Catalyzed Ring-Opening Polymerization of ε-caprolactone".

October 2012 Akron Functional Material. "Asymmetric Functionalization Using Enzymes".

August 2012 American Chemical Society. Philadelphia PA.

- **"**Green Polymer Chemistry: Enzymatic Functionalization of Poly(ethylene glycol)s under Solventless Conditions".
- "Green Polymer Chemistry: Enzyme-Catalyzed Transesterification of Divinyl Adipate".

March 2012 Spring Rubber Division Meeting, Akron, OH. "Toward the synthesis of isobutylene-based dendrimers for targeted drug delivery".

Poster presentation

June 2012 Macro 2012. IUPAC. World Polymer Conference.

October 2011 8th Student Colloquium Rubber Division, Cleveland.

July 2011 ACS Summer School on Green Chemistry at McGill University, Montreal, Canada.

July 2011 IUPAC International Symposium on Ionic Polymerization.

March 2010 ACS: American Chemical Society 2011. California

October 2010 4th International Symposium on Polymers Materials Science.

PUBLICATIONS

Castano M.; Zhen. J.; Becker M. L.; Puskas J.E. Alkyne functionalized ε-caprolactone though Enzyme-Catalyzed Ring-Opening Polymerization. *JACS Communications* **2013.** In preparation.

Castano M.; Seo K.; Guo K.; Becker M. L.; Wesdemiotis C.; Puskas J. E. Investigation of the Kinetics and Mechanism of Enzyme-catalyzed Transesterification of Divinyl Adipate with Tetraethylene Glycol. *Green Chemistry*. **2013** In preparation.

Seo K.; **Castano M**.; Casiano M.; Wesdemiotis C.; Becker M. L.; Puskas J. E. Green Polymer Chemistry VII: Functionalization of Poly(ethylene glycol)s by Enzyme-catalyzed Transesterification of Divinyl Adipate under Solventless Conditions. *Green Chemistry*. **2013** Submitted.

Castano M.; Seo K.; Kim G.; Becker M. L.; Puskas J.E. Green Polymer Chemistry: Synthesis of Halo-ester Functionalized Poly(ethylene glycol)s via Enzymatic Catalysis. *Macromolecular Rapid Communications* **2013.** Accepted.

Puskas J. E.; Seo K.; **Castano M**.; Casiano M.; Wesdemiotis C. Green Polymer Chemistry: Enzymatic Functionalization of Poly(ethylene glycol)s under Solventless Conditions. (*Accepted* for ACS symposium book Green polymer chemistry: Polymer biocatalysis and biobased materials)

Neyman, K.; **Castano, M**.; Puskas, J. E. Toward the synthesis of isobutylene -based dendrimers for targeted drug delivery: model studies. *Polymer Preprints*. **2011**. 52.

Hincapie G.; Acelas N.; **Castaño M.;** David J.; Restrepo A. Structural Studies of the Water Hexamer. *J. Phys. Chem. A*. **2010**. 114. 7809.

Castaño M.; Cardona W. G.; Quiñones W. F.; Echeverri L. F. Síntesis de pironas con posible actividad Leishmanicida. *Scientia et technica*. **2007**. 33. 303.

Castaño M.; Cardona W. G.; Quiñones W. F.; Robledo S.; Echeverri L. F. Leishmanicidal Activity of Aliphatic and Aromatic Lactones Correlation Structure-Activity. *Molecules*. **2009**. 14. 2491.

TEACHING EXPERIENCE

The University of Akron, Akron, OH
Mentor. Research Experience for Undergrads program (REU). Kelly Neyman, Biology Department, Baldwin-Wallace, OH. May **2010**-August **2010**.

The University of Akron, Akron, OH
Mentor. Honors Project. Devin Chapman, Chemistry Department, The University of Akron, OH. January **2012**-May **2012**.

The University of Akron, Akron, OH
Mentor. High School volunteer. Kathleen Graham, Hawken High School. June **2012**- July **2012**. With this project student was winner First place STEMM Symposium: Hawken School & Second place in Chemistry at NEOSEF.

The University of Akron, Akron, OH
Mentor. Honors Project. Grace Kim, Biomedical Department, The University of Akron, OH. January **2012**-**2013**. With this project student was winner Undergraduate Presenter Award: Cleveland ACS MIM & Best Oral Presentation UASIS.

The University of Akron, Akron, OH
Mentor. Honors Project. Erin Keane, Chemistry Department, The University of Akron, OH. July **2012**-May **2013**.

The University of Akron, Akron, OH
Mentor. High School volunteer. Julianne Stamer, St. Vincent-St. Mary High School. October **2012**- February **2013**.

Universidad de Antioquia, Medellin, Colombia
Laboratory Assistant. Organic Chemistry teaching laboratory with Mr. Alex Gutierrez. **2006-2007**

- Preparing reagents and laboratory instruments for teaching purposes.
- Mentoring freshman students in laboratory techniques and safety.

ACADEMIC AWARDS

- Ohio Rubber Groups Graduate Student Award for **2012**
- Selected by a review panel to attend the ACS Summer School on Green Chemistry at McGill University in **2011**.
- Best Graduated Student in Chemistry Department. Universidad de Antioquia, Medellin-Colombia. **2009**.
- Honorific award. Undergradute Research. Universidad de Antioquia, Medellin-Colombia. **2009.**

AFFILIATIONS

- American Chemical Society, Division of Polymer Science and the Rubber Division, Golden Key Member.

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

- Secretary of Polymer Science Student Organization (PSSO) **2009-2010**.
- Vicepresident Student Chapter Rubber Division at The University of Akron (**2013**).
- Marathon Runner: Relay Team (**2011**), Half-Marathon (**2012**), Full Marathon (**2013**)