Dawit Gezahegn Seifu, Ph.D.

Mailing address: 766 Samantha Eastop Ave. K2S 0Z9, Stittsville, ON, Canada
Tel. +1 581-995-6477, E-mail: dseifu@alumni.uwo.ca or davegezu@gmail.com

EDUCATION

Ph.D. Chemical and Biochemical Engineering, 2006-2012
The University of Western Ontario, Canada
Specialization: Chemical and Biochemical Engineering (Tissue engineering and regenerative medicine)

B.Sc. Chemical Engineering (With Very Great Distinction), 2001-2005
Addis Ababa University, Ethiopia
Specialization: Chemical Engineering

EXPERIENCE

Postdoctoral Fellow (2012-2016)
Laboratory for Biomaterials and Bioengineering (LBB)
Dept Min-Met-Materials Eng & University Hospital Research Center,
Laval University, Quebec City, Canada
And Unsworth Lab Cardiovascular Biomaterials
National Institute for Nanotechnology (NINT), National Research Council,
University of Alberta, Edmonton, Alberta, Canada

Graduate Research Assistant (2006 –2012)
Department of Chemical and Biochemical Engineering, UWO, Canada

Graduate Teaching Assistant (September 2006 – June 2012)
Department of Chemical and Biochemical Engineering, UWO, Canada

- Assisted in teaching undergraduate and graduate courses.
  - CBE 4423a: Tissue Engineering
  - CBE 9150: Advance Chemical Engineering Thermodynamics
  - CBE 2224b: Chemical Engineering Thermodynamics
  - CBE 2214a: Engineering Thermodynamics
  - CBE 3323a: Staged Operations

Walmart Associate (November 2017 - November 2023)
Merchandizing associate and CAP 1 associate
Certified operator: Sit down counterbalance Forklift, Walkie, Walkie stacker and Bravi Sprint

Home Depot Associate (March 2019 - November 2023)
Receiving associate
Certified operator: Reach truck, Electric pallet Jack and Walkie rider
Assistant Consumables Manager of Kanata Walmart (November 2023 - Precent)
As one of the four assistant manger I have to oversee the day to day portions of the store, scheduling associates, responding customer complains, meeting different operational matrix and disciplining associates.

PROFESSIONAL AFFILIATIONS

- Member, Canadian Chemical Engineering Society
- Member, Canadian Biomaterial Sociality

PUBLICATIONS IN JOURNALS

1. **Dawit G Seifu**, Sébastien Meghezi, Kibret Mequanint, Larry Unsworth, Diego Mantovani, Visoelastic properties of multi-layer and cellularized vascular tissues based on collagen gel. Journal of the Mechanical Behavior of Biomedical Materials, February 2018; doi: 10.1016/j.jmbbm.2018.01.021
2. Sébastien Meghezi, **Dawit G Seifu,** Diego Mantovani. Unraveling relationships between anisotropic tissue organization and viscoelastic properties of cellularized collagen scaffolds, Acta Biomaterialia, December 2017, Submited
3. Sébastien Meghezi, **Dawit G Seifu,** Diego Mantovani. Nina Bono, Larry Unsworth, Kibret Mequanint, Engineering 3D cellularized collagen gels for vascular tissue fabrication, Journal of Visualized Experiments. June 2015, Issue 100; doi: 10.3791/52812
4. L. Cardenas, J. MacLeod, J. Lipton-Duffin, **D.G Seifu**, F. Popescu, M Siaj, D. Mantovani, F. Rosei. Reduced Graphene Oxide Growth on 316L Stainless Steel for Medical Applications. Nanoscale. 2014 July 10;6(15):8664-70.
5. **Dawit G. Seifu,** Agung Purnama, Kibret Mequanint, Diego Mantovani. Small Diameter Vascular Tissue Engineering. Nature Cardiology, 10(7); 410-21: 2013.
6. Tierney Deluzio, **Dawit G. Seifu**, Kibret Mequanint. 3D scaffolds in tissue engineering and regenerative medicine: Beyond structural templates? Pharmaceutical Bioprocessing. 1(3); 267-281; 2013.
7. **Dawit G Seifu**, Dawit Seifu and Kibret Mequanint. Fabrication of vascular tissue engineering scaffolds with enhanced oxygen diffusivity and cell infiltration. Journal of Biomaterials and Tissue Engineering, 2(4); 280-291: 2012.
8. **Dawit G Seifu**, T. Isimjan, Kibret Mequanint. Tissue engineering scaffolds containing embedded fluorinated-zeolite oxygen vectors. Acta Biomaterialia 2011, 7, (10), 3670-3678.

9. **Dawit G Seifu**, Kibret Mequanint. Experimental and Modeling Studies of Oxygen Tension in Vascular Tissue Engineering With and Without an Oxygen Carrier. Journal of Biomaterials and Tissue Engineering 2011, 1, (1), 49-59.
10. Carles Torras, **Dawit G Seifu**, Luizildo Pitol-Filho, Ricard Garcia-Valls. Novel polymeric membrane structures: microcapsules. Desalination 2006, 200, 12–14

CONFERENCE PRESENTATIONS

1. **Dawit G. Seifu**, Sébastien Meghezi, Larry D Unsworth, Kibret Mequanint, Diego Mantovani. Concentrically fused multi-layered tubular cell seeded collagen constructs for Vascular Tissue engineering. 31st Annual Canadian Biomaterial Society, Halifax, Canada, June 2nd-5th, 2014.
2. Sébastien Meghezi, **Dawit G Seifu,** Diego Mantovani. Controlled structural tissue organization and mechanical properties of collagen gel scaffolds through cells remodeling. 31st Annual Canadian Biomaterial Society, Halifax, Canada, June 2nd-5th, 2014.
3. **Dawit G. Seifu**, Sébastien Meghezi, Diego Mantovani. Engineering a multi-wall vascular construct by directly processing cells and collagen gels in co-culture in rotating bioreactor. TERMIS, Atlanta, Georgia, USA. November 10th-13th, 2013.
4. Sébastien Meghezi, **Dawit G. Seifu,** Diego Mantovani. Static maturation allows smooth muscle cells to effectively remodel collagen gel matrix prior to mechanical stimulation in a dynamic bioreactor. TERMIS, Atlanta, Georgia, USA. November 10th-13th, 2013.
5. Sebastien Meghezi, **Dawit G. Seifu,** Diego Mantovani. Collagen scaffolds reinforcement through cells remodeling for vascular tissue engineering. 30th Annual Canadian Biomaterial Society, Ottawa, Canada, May 29th – June 1st, 2013.
6. Caroline Loy, Sebastien Meghezi, Lucie Levesque, **Dawit G. Seifu**, Jayachandran N Kizhakkedathu, Diego Mantovani. Co-culture of ECs and SMCs Promotes Vascular Tissue Remodeling. 30th Annual Canadian Biomaterial Society, Ottawa, Canada. May 29th – June 1st, 2013.
7. Luis Cardenas, Filip Popescu, Maxime Cloutier, **Dawit Gezahegn**, et al. Biocompatible Graphene Coatings for Biological Applications. Conference Tools for Materials Science & Technology 2013
8. **Dawit G Seifu**, Kibret Mequanint. Oxygen Delivery Strategies in 3D Cell Seeded Tissue-Engineered Scaffolds. 61st CSChE Conference, London ON, October 23rd -26th, 2011.
9. **Dawit G Seifu**, Kibret Mequanint. Bioreactor Cultured Vascular Tissue Constructs with Improved Oxygen Supply. 28th CBS Conference, Kingston ON, June 2nd-4th, 2010.
10. **Dawit G Seifu**, Kibret Mequanint. Bioreactor Matured Vascular Tissue Substitutes. Research Bridges at the Sarnia Research Park, Sarnia ON, May 6th, 2010.

11. **Dawit G Seifu**, Kibret Mequanint. Bioreactor Oxygen Profile in Cell Seeded Vascular Tissue Constructs. 27th CBS Conference, Quebec City QC, May 20th-23rd, 2009.
12. **Dawit G Seifu**, Kibret Mequanint. Oxygen Delivery Strategy for Tissue Engineered Vascular Constructs. 2nd Annual Symposium Particle Technology Research Centre (PTRC), London ON, July 13th, 2008.

KEY QUALIFICATIONS AND RELEVANT SKILLS

A. ***Key Qualifications***

- Extensive experience in both animal and human cell culture for tissue engineering on 2D and 3D constructs. Fixing, stinging and mounting cells for different microscope imaging. (Cells types: human umbilical vain endothelial and smooth muscle cells, adult coronary smooth muscle cells and porcine endothelial, fibroblast and smooth muscle cells)
- Maturing tissue engineered constructs with BOSE and Instron-TERM bioreactors and expertise in Windtest software for BOSE bioreactors and Growthwork software for Instron-TERM bioreactors.
- Preparing reconstituted Type I collagen from rat tail for ready-to-use or storable and suitable for further in-vitro and in-vivo investigations.
- Expertise in protein extraction, quantification, and Western blot analysis.
- Expertise in Extracellular protein quantification and Isolation.
- Amine-reactive fluorescent dyes protein labeling and 2D proteomics using Bio-Rad PROTEAN® II xi cell. As well as, experience in 2D gel imaging together with colony counting and measurement of 2-D spots using ImageQuant TL software
- Immunostaining with primary and secondary antibodies and further characterization using histology and Immunohistochemistry
- Work experience in design, fabricating and characterizing porous tissue engineered polymeric scaffolds;
- Regenerative medicine and tissue engineering of cardiac tissues using biopolymer as a scaffold (Type I Collagen).
- Characterizing mechanical Properties of soft tissue at pseudophysiological environment.
- Expertise in imaging using Scanning Electron Microscope (SEM), Environmental SEM, Confocal Microscope, Fluorescent Microscope, Phase-contrast Microscope, Transmission Electron Microscope (TEM) and Optical Coherence Tomography (OCT)
- Hands-on experience in commissioning cell culture and tissue engineering laboratory. Strong technical knowledge and experience in collecting, organizing, and analyzing scientific data or information.
- Expertise in writing and presenting technical reports, scientific findings and grants.
- Self motivated, detail oriented, and team player with strong interpersonal skills.

B. ***Computing and Modeling Skills***

- Data Analysis using python,
- Coding with python in codecademy
- Modelling Partial Differential problems using Fluent, Matlab and SciLab,
- Statistical analysis and multilevel modelling software (Graphpad and Sigma plot); Outlier filter using MatLab code.
- Programming languages (e.g. SciLab, Matlab, Fluent, C++, Java, Visual Basic)

ACADEMIC SCHOLARSHIPS, AWARDS AND GRANTS

- NSERC Create Program in Regenerative Medicine Postdoctoral Scholarship (August 2012- 2016)
- Western Engineering Scholarship (WES) Award (2006 – 2012). University of Western Ontario, Canada.
- Faculty of Engineering Medal 2005. Addis Ababa University, Ethiopia.
- First Prize Scholastic Awards from the Ethiopian Society of Chemical Engineers (2003-2005). Addis Ababa University, Ethiopia.
- Ethiopian Association of Japan Scholarship Award for Ethiopian University Students (2004-2005). Addis Ababa University, Ethiopia.

REFERENCES

Reference 1

Kibret Mequanint, PhD, P.Eng
Professor and Associate Chair
Department of Chemical and Biochemical Engineering
Thompson Engineering Building, Room 439
University of Western Ontario
London, ON, N6A5B9, CANADA
Voice: +1-519-661-2111 Extension 88573
Fax: +1-519-661-3498
http://www.engga.uwo.ca/people/kmequanint/main.htm

Reference 2

Diego Mantovani, PhD, FBSE
Interim Director, Dept Min-Met-Materials Eng
Director, Lab for Biomaterials and
Holder, Canada Research Chair Tier I for the Innovation in Surgery
Adjunct Director, Regenerative Medicine, CHU de Quebec Research Center
Laval University, Quebec City, Canada
Voice: +1-418-656-2131 Extension 6270
www.lbb.ulaval.ca
www.iBiomat.ulaval.ca

Reference 3

Larry D. Unsworth, Ph.D, P.Eng.
Associate Professor, Chemical and Materials Engineering, Faculty of Engineering
Principal Investigator, National Institute for Nanotechnology, National Research Council
Associate Adjunct Professor, Biomedical Engineering, Faculty of Medicine & Dentistry
ECERF W7-070D
University of Alberta
Edmonton, AB, T6G 2V4
Voice: +1-780-492-6020
Fax: 780-492-2881
url: www.ualberta.ca/~lunswort