BioMetals 2018 Venue:
Demarais Hall, University of Ottawa
Indoor Map of Desmarais Hall (DMS)

1st Floor
Registration Desk & Lecture Halls

Lecture Locations:
Sunday: DMS1160
Monday: DMS1160
Tuesday: DMS1140
Wednesday: DMS1140
Thursday: DMS1160

Legend:
- Escaliers d'extérieur
  Outdoor stairs
- Escaliers d'intérieur
  Indoor stairs
- Ascenseur
  Elevator
- Toilettes pour hommes
  Men washrooms
- Toilettes pour femmes
  Women washrooms
- Toilettes unisexes
  Unisex washrooms

4th Floor
Opening Reception & Lunches

9th Floor
IBS General Meeting

12th Floor
Poster Sessions
General Conference Information

Oral presentations:

- Presenters are requested to load their presentation 15 mins before their session begins to ensure that it loads correctly.

Poster presentations:

- The poster room is located in Demarais Hall on the 12th floor in room 12102. Poster presenters are requested to put up their poster on Monday, July 16th and remove their posters by the end of the day on Wednesday, July 18th.
- There will be general poster viewing during the lunches and throughout the conference.
- The schedule for presenters to be at their posters during the poster session on Tuesday, July 17th will be as follows:
  - Odd numbered posters: 6:00 pm – 6:30 pm
  - Even numbered posters: 6:30 pm - 7:00 pm

Wi-Fi Connections:

- We have arranged for Wi-Fi coverage throughout Demarais Hall. The Wi-Fi connection is the “guOttawa” connection. There is no need for login or password and there is no security or encryption on the wireless network.
- Alternatively, participants can connect via the “eduroam” connection with their host institution eduroam accounts.

Social Media

- We will be live tweeting this event using #BioMetals2018. Please share your thoughts, photos and memorable moments using this hashtag throughout the conference. Join the conversation! We look forward to seeing your photos and conference highlights.
## CONFERENCE ITINEARY AT A GLANCE

<table>
<thead>
<tr>
<th>Time</th>
<th>Sunday, July 15th</th>
<th>Monday, July 16th</th>
<th>Tuesday, July 17th</th>
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**SESSION 1:** METAL TRANSPORT AND TRAFFICKING IN EUKARYOTES  
**SESSION 2:** METAL TRANSPORT IN BACTERIA  
**SESSION 3:** METAL AND GENE REGULATION  
**SESSION 4:** METAL TRAFFICKING  
**SESSION 5A:** METALS IN HEALTH AND DISEASE  
**SESSION 5B:** SIDEROPHORES  
**SESSION 6:** METAL HOMEOSTASIS AND IRON-SULFUR CLUSTERS  
**SESSION 7:** METALS AND THE MICROBIOME  
**SESSION 8:** METALS AND THE HOST-MICROBE INTERFACE  
**SESSION 9:** METALS AND THE MICROBIOME  
**SESSION 10:** METALS AND THE HOST-MICROBE INTERFACE  

- **Coffee Break**
- **Lunch / Poster viewing**
- **Coffee Break**
- **Conference Photo**
- **Travel Time**
- **Poster session / Reception**
- **Banquet at Ottawa Boathouse (until 23:00)**

**Opening remarks**

- **Keynote speaker: Tracey Rouault**
- **Reception (until 20:00)**
# BioMetals 2018 Conference Agenda

## Sunday – July 15th, 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>2:00 pm – 5:00 pm</td>
<td><strong>REGISTRATION</strong></td>
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<tr>
<td>5:00 pm</td>
<td><strong>WELCOMING REMARKS</strong> (DMS 1160): Alain Stintzi (Local Symposium Organizer)</td>
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<tr>
<td>5:15 pm</td>
<td><strong>O1: KEYNOTE LECTURE</strong> Recent progress on iron sulfur proteins, ubiquitous and indispensable contributors to metabolism in all kingdoms of life. Tracey Rouault (National Institutes of Health, USA)</td>
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<tr>
<td>6:30 pm – 8:00 pm</td>
<td><strong>RECEPTION</strong> (DMS 4101)</td>
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## Monday – July 16th, 2018

### SESSION 1: METAL TRANSPORT AND TRAFFICKING IN EUKARYOTES (DMS 1160)
Chair: Jean-François Couture (University of Ottawa, Canada)

<table>
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<th>Time</th>
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| 8:00 am    | **O2:** Mechanisms and regulation of iron intake in early infancy  
Greg Anderson (QIMR Berghofer Medical Research Institute, Australia) |
| 8:30 am    | **O3:** Channels, transporters and receptors for cadmium and cadmium complexes: Facts and alternative facts  
Frank Thévenod (University of Witten/Herdecke, Physiology, Germany) |
| 9:00 am    | **O4:** The Path of Iron from Plasma Transferrin to Hemoglobin  
Prem Ponka (McGill University, Canada) |
| 9:30 am    | **O5:** Safe coordinated trafficking of heme and iron with copper maintain cell homeostasis: modules from the cytoprotective hemopexin system  
Ann Smith (University of Missouri-Kansas City, USA) |
| 10:00 – 10:30 am | **COFFEE BREAK**                                                                     |

### SESSION 2A: METAL TRANSPORT IN BACTERIA (DMS 1160)
Chair: Deborah Zamble (University of Toronto, Canada)

<table>
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| 10:30 am   | **O6:** Feo: New insights into an ancient iron transporter  
Shelley Payne (University of Texas, USA) |
| 11:00 am   | **O7:** Probiotic *Escherichia coli* Nissle 1917 Uses Zinc Transporters and a Product of the Yersiniabactin Operon to Acquire Zinc in the Inflamed Gut  
Judith Behnse (University of Illinois at Chicago, USA) |
11:30 am  **O8**: Interplay of uptake and efflux systems in combination with the zinc repository reveals new insights into a complex regulated zinc homeostasis in the bacterium *Cupriavidus metallidurans*  
  **Martin Herzberg** (*Martin-Luther-University Halle-Wittenberg, Germany*)

11:50 am  **O9**: Structural Basis of the Regulation of Heme Acquisition in *Corynebacterium glutamicum*  
  **Shigetoshi Aono** (*Institute for Molecular Science, National Institutes of Natural Sciences, Japan*)

12:10 – 1:30 pm  **LUNCH (DMS 4101) & POSTERS (DMS 12102)**

**SESSION 2B: METAL TRANSPORT IN BACTERIA (DMS 1160)**

Chair: **Marvin J. Miller** (University of Notre Dame, USA)

1:30 pm  **O10**: Two novel copper chaperones are essential for the expression and activity of copper-dependent enzymes  
  **Oded Lewinson** (*Technion- Israel Institute of Technology, Israel*)

2:00 pm  **O11**: New Membrane Transport Paradigms for Iron Revealed by Siderophore Probes  
  **Timothy A. Wencewicz** (*Washington University, USA*)

2:30 pm  **O12**: Crystal structure of a ZIP zinc transporter reveal a binuclear metal center in the transport pathway  
  **Jian Hu** (*Michigan State University, USA*)

2:50 – 3:10 pm  **COFFEE BREAK**

**SESSION 3: METAL AND GENE REGULATION (DMS 1160)**

Chair: **John Helmann** (Cornell University, USA)

3:10 pm  **O13**: Meeting the quota: the Zap1 transcription factor and the cellular economy of zinc  
  **David Eide** (*University of Wisconsin Madison, USA*)

3:40 pm  **O14**: The tetrameric family of the FUR metalloregulators: from DNA dependent tetramer dissociation to virulence  
  **Isabelle Michaud-Soret** (*Laboratory of Chemistry and Biology of Metals, CNRS/CEA/UGA, France*)

4:10 pm  **O15**: The components of the unique Zur regulon of *Cupriavidus metallidurans*  
  **Lucy Bütof** (*Martin-Luther-University Halle-Wittenberg, Germany*)

6:00 - 9:00 pm  **CULTURAL OUTING: ABORIGINAL EXPERIENCES** – Victoria Island
SESSION 4: METAL TRAFFICKING (DMS 1140)

Chair: Larry Barton (University of New Mexico, USA)

8:00 am  **O16**: Zinc buffering, mobilization and chaperone-dependent trafficking in *Bacillus subtilis*
John Helmann (Cornell University, USA)

8:30 am  **O17**: Biosynthesis of the [NiFe]-Hydrogenase Enzyme: Unidirectional nickel selective transfer between the metallocenter assembly accessory proteins
Deborah Zamble (University of Toronto, Canada)

9:00 am  **O18**: Structural insights into nickel delivery to urease
Kam-Bo Wong (The Chinese University of Hong Kong, Hong Kong)

9:20 am  **O19**: Biosynthesis and functions of the nickel-pincer cofactor
Benoît Desguin (Université catholique de Louvain, Belgium)

9:40 am  **O20**: Reductive mobilization of iron from intact ferritins: Effect of oxygen concentration and physiological relevance
Artem Melman (Clarkson University, USA)

10:10 am  **O21**: Mutant L-Chain Ferritins that Cause Neuroferritinopathy Significantly Alter Ferritin Functionality and Iron Permeability
Fadi Bou-Abdallah (SUNY Potsdam, USA)

10:30 – 10:50 am  **COFFEE BREAK**

SESSION 5A: METALS IN HEALTH AND DISEASE (DMS 1140)

Chair: Greg Anderson (QIMR Berghofer Medical Research Institute, Australia)

10:50 am  **O22**: Calcium-binding to plastins/fimbrins: regulation of actin bundling
Hans Vogel (University of Calgary, Canada)

11:20 am  **O23**: Glial cell copper regulation as a key target to control neuroinflammation
Anthony White (QIMR Berghofer Medical Research Institute, Australia)

11:50 am  **O24**: The Yin and Yang of brain zinc in dementia
Stefano L. Sensi (University of Chieti-Pescara, Italia)

12:20 – 1:30 pm  **LUNCH (DMS 4101) & POSTERS (DMS 12102)**
SESSION 5B: METALS IN HEALTH AND DISEASE (DMS 1140)

Chair: Frank Thévenod (University of Witten/Herdecke, Physiology, Germany)

1:30 pm  O25: Metal speciation: exploring different forms of the metal ions and their biological activities
          Debbie Crans (Colorado State University, USA)

2:00 pm  O26: Small molecule and biometal adjuvant for oncolytic immunotherapy
          Jean-Simon Diallo (University of Ottawa, Canada)

2:30 pm  O27: Mitochondria-targeted iron chelators to protect Friedreich’s ataxia skin cells from Ultraviolet A-induced cell death
          Charareh Pourzand (University of Bath, UK)

2:50 pm  O28: Glutathione / Iron Interactions
          Robert Hider (King’s College London, UK)

3:10 – 3:30 pm  COFFEE BREAK

SESSION 5C: METALS IN HEALTH AND DISEASE (DMS 1140)

Chair: Ann Smith (University of Missouri-Kansas City, USA)

3:30 pm  O29: Restored Iron Transport by a Small Molecule Molecular Prosthetic Promotes Absorption and Hemoglobinization in Animals
          Anna SantaMaria (University of Illinois at Urbana-Champaign, USA)

3:50 pm  O30: Anticancer and Antimicrobial Activity of Novel Non-toxic Ruthenium Metal Complexes of Bis-benzimidazole and Polydentate Pyridine-based Ligands
          Daphne Mapolelo (University of Botswana, Botswana)

4:10 pm  O31: Tungstate Accumulation and Transformation in the Bone
          Scott Bohle (McGill University, Canada)

4:30 pm  O32: Biochemical effects of Eu³⁺ and Cm³⁺ on eukaryotic cell metabolism – a case study
          Johannes Raff (Helmholtz-Zentrum Dresden-Rossendorf, Institute of Resource Ecology, Germany)

4:50 pm  O33: How proteins match Zn(II) affinity to fit their function? Relationship between thermodynamics and free zinc status
          Artur Krężel (University of Wroclaw, Poland)

5:15 – 5:45 pm  GROUP PHOTO - in front of Tabaret Hall

5:45 – 7:45 pm  RECEPTION & POSTER SESSION (DMS 12102)
SESSION 6A: METAL HOMEOSTASIS (DMS 1140)
Chair: James Butcher (University of Ottawa, Canada)

8:00 am   O34: Molecular mechanisms of bacterial transition metal homeostasis
  David Giedroc (Indiana University, USA)

8:30 am   O35: Multiple sigma factors regulate iron homeostasis in Pseudomonas aeruginosa
  Pierre Cornelis (Université de Rouen, LMSM, France)

8:50 am   O36: The interplay of FurA, FurB/Zur and FurC/PerR paralogs modulates their functional activities in Anabaena PCC7120
  Emma Sevilla (University of Zaragoza, Spain)

9:10 am   O37: Global impact of FurC (PerR) overexpression in Anabaena PCC7120
  María F. Fillat (University of Zaragoza, Spain)

9:30 am   O38: Proteomics reveals targets of the heme-responsive PrrH RNA in Pseudomonas aeruginosa
  Amanda Oglesby-Sherrouse (University of Maryland, USA)

9:50 – 10:10 am  COFFEE BREAK

SESSION 6B: METAL HOMEOSTASIS AND IRON-SULFUR CLUSTERS (DMS 1140)
Chair: Hans Vogel (University of Calgary, Canada)

10:10 am   O39: Oxygen regulation and iron homeostasis
  Patricia Kiley (University of Wisconsin-Madison, USA)

10:40 am   O40: Structural insights into a metalloregulator
  Jean-François Couture (University of Ottawa, Canada)

11:10 am   O41: Genetic Regulation and Co-regulation of Iron, Copper, and Zinc in Mouse Brain
  Byron C. Jones (The University of Tennessee Health Science Center, USA)

11:30 am   O42: Iron sulfur cluster nitrosylation in the NO regulatory protein NsrR
  Erin Dodd (University of Oxford, UK)

11:50 am   O43: NIF system and iron-sulfur clusters network in Helicobacter pylori
  Stéphane Benoit (University of Georgia-Athens, USA)

12:10 – 1:30 pm  LUNCH (DMS 4101), POSTERS (DMS12102) & IBS General Meeting (DMS 9413)
SESSION 7: SIDEROPHORES (DMS 1140)
Chair: David E. Heinrichs (University of Western Ontario, Canada)

1:30 pm  **O44:** Exploiting Microbial Iron Transport for Development of Targeted Antibiotics: Synthetic Sideromycins  
*Marvin J. Miller (University of Notre Dame, USA)*

2:00 pm  **O45:** Generating siderophores with new properties and new functions from precursor-directed biosynthesis  
*Rachel Codd (The University of Sydney, Australia)*

2:30 pm  **O46:** Heme extracted from hemoglobin by IsdB at the cell surface *Staphylococcus aureus* is shuttled to SbnI to regulate siderophore biosynthesis  
*Michael Murphy (University of British Columbia, Canada)*

3:00 pm  **O47:** Contribution of siderophores vanchrobactin and piscibactin to the virulence of *Vibrio anguillarum*: piscibactin synthesis is favored at low temperatures  
*Manuel L. Lemos (University of Santiago de Compostela, Spain)*

3:20 pm  **O48:** Biomimetic analogues of siderophores as structural probes for microbial iron uptake processes  
*Elzbieta Gumienna-Kontecka (University of Wroclaw, Poland)*

3:40 – 4:10 pm  **COFFEE BREAK**

SESSION 8: METALS AND DRUGS (DMS 1140)
Chair: Timothy A. Wencewicz (Washington University, USA)

4:10 pm  **O49:** From Metallomics to Drug Development: Bismuth-based Agents as Inhibitors against Metallo-β-Lactamase  
*Hongzhe Sun (University of Hong Kong, Hong Kong)*

4:40 pm  **O50:** C-terminal region of *C. albicans* Pra1 zincophore as a tool for drug delivery  
*Magdalena Rowinska-Zyrek (University of Wroclaw, Poland)*

5:00 pm  **O51:** Picking from the crowd: toward high-throughput screening and in *silico* discovery of novel antibiotics with metal-derived activities  
*Frank Wolschendorf (University of Alabama, USA)*

6:30 – 11:00 pm  **BANQUET** - at The Ottawa Rowing Club Boathouse
SESSION 9: METALS AND THE MICROBIOME (DMS 1160)
Chair: Simon Andrews (University of Reading, UK)

8:30 am  O52: Precision editing of the gut microbiota
          Sebastian Winter (UT Southwestern Medical Center, USA)

9:00 am  O53: Iron supplements modulate gut microbiota composition and probiotic efficiency in mice
          Manuela Santos (Université de Montréal, Canada)

9:30 am  O54: The effect of bismuth on SPF and colitogenic microbiota
          James Butcher (University of Ottawa, Canada)

9:50 – 10:10 am  COFFEE BREAK

SESSION 10: METALS AT THE HOST-MICROBE INTERFACE (DMS 1160)
Chair: Pierre Cornelis (Université de Rouen, LMSM, France)

10:10 am  O55: Bacterial iron export combats innate immunity
          Simon Andrews (University of Reading, UK)

10:40 am  O56: Iron acquisition in the Staphylococcus aureus-infected phagocyte
          David E. Heinrichs (University of Western Ontario, Canada)

11:10 am  O57: Fusobacterium nucleatum adhesion proteins increase the prooxidative activity of metal ions
          Kamila Stokowa-Soltys (University of Wroclaw, Poland)

11:30 am  Presentation of BioMetals 2020
11:35 am  Award session
11:45 am  Address from the IBS president
11:50 am  Closing remarks