Microbiology and Immunology

Program Exposure 2017

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Chairman and Professor
Dept. Microbiology & Immunology

Program Leader
Cancer Immunology Program
Hollings Cancer Center

The Sally Abney Rose Chair in
Stem Cell Biology & Therapy
M&I Program currently comprises

- 30 graduate students
  - 14 PhD students
  - 9 MD/PhD students
  - 7 Masters students
- >40 Program Faculty in 8 departments
Departmental vs. Program Faculty

- Program Faculty can be from any MUSC departments with research interests related to microbiology or immunology
  - Currently 21 in Dept. of Microbiology & Immunology
  - >20 faculty from 7 other MUSC departments
- Faculty can be affiliated with multiple graduate programs
Departmental vs. Program Faculty

- Requirements are the same for the students
- Students in the same lab can be in different programs
- Faculty can petition to be added to the M&I Program at any time

Proportions of M&I Students with Departmental or Program Faculty Mentors

- Undecided: 4%
- Program Faculty: 29%
- M & I Dept. Faculty: 67%
PhD Program Requirements

- Concentrate in **Microbiology** or **Immunology**
- Individualized course choices (12 credits, merit graded)
- You may take courses offered by other departments if your mentor and advisory committee approve
- Written qualifying exam during the immediate summer after the 2nd year
- PhD students are required to publish at least one first-author peer-reviewed manuscript. Our students publish 2-3 on average
The M&I Program offers at least 2 courses for advanced credit every semester.

This fall we offer 3 courses:
- MBIM 735 Advanced Immunology
- MBIM 779 Immunogenetics
- MBIM 856 Critical Literature Review in Inflammation and Immunity
## M&I Course Offerings

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>Advanced Immunology</td>
<td>Dental Microbiology</td>
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<tr>
<td>Advanced Microbiology</td>
<td>Environmental Microbiology</td>
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<tr>
<td>(alternate years)</td>
<td>Immunogenetics</td>
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<tr>
<td>Virology (alternate years)</td>
<td>Cancer Immunotherapy Lessons</td>
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<tr>
<td>Immunogenetics</td>
<td>Mini-Course: Immunobiology</td>
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<tr>
<td>Critical Literature Review in</td>
<td>Critical Literature Review in Inflammation and Immunity</td>
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<tr>
<td>Inflammation and Immunity</td>
<td>Student seminar</td>
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<td>Student seminar</td>
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M&I Student Seminar

- Every Friday at noon in BSB 402
- All students speak once per year
- Faculty present on alternate weeks, supplemented by monthly outside speakers

- All programs are welcome!! Visit us anytime!
Where are M&I graduates now?

- 7 PhD degrees awarded in 2016-2017
- 50 PhD degrees awarded since 2006
  - 20 went to medical school at MUSC (16 MSTP)
  - 3 went to dental school at MUSC (1 DMD/PhD)
  - 13 are in academic or governmental post-doc positions
  - 4 are in the biotech industry/intellectual property
  - 5 are in tenure track academic positions
  - 1 runs an academic core facility
  - 1 is a clinical trial coordinator in industry
Where are M&I graduates now?

- **4 MS degrees awarded in 2016-2017**
- **28 MS degrees awarded since 2008**
  - 5 were admitted to medical school
  - 6 admitted to PhD programs
  - 1 went to a Master’s program in public health
  - 1 went to Pharmacy school
  - 4 are research associates here at MUSC
M & I Students’ Publications 2016-2017

- 19 manuscripts were published in peer reviewed journals.
- 33 abstracts were presented in scientific meetings.
- 3 oral presentations in national conferences.
M & I Students’ Honors and Awards 2016-2017

- Outstanding MS Thesis Award, MUSC
  Neal L.

- American Association of Immunologists (AAI) Trainee Abstract Award:
  Metelli, A., Dhar P.

- NIH/NCI F31 Grant: Award Dates: 07/01/2017 – 06/30/2020. Total Project Direct Costs: $175,738
  Riesenberge, B.

- NIH/NHLBI Cardiovascular Predoctoral Fellowship Training Grant: Danh, T.
M & I Students’ Honors and Awards 2016-2017

- SCTR TL1 (T32) Predoctoral Clinical & Translational Research Training Award: Happe, M.

- MUSC Student Research Day, 2016 Willard and Betty Peterson Award, 1st Place: Bowers, J.S.

- Oral Presenter, 2nd Place award: Bailey, S.R.

- 31st Annual Meeting of the Society of Immunotherapy of Cancer (SITC) Travel Award: Metelli, A.
M & I Students’ Honors and Awards 2016-2017

  Kwon, H.

- MUSC Abney Foundation Scholarship:
  Kwon, H.

- Infectious Disease Society of America Medical Scholar: Ogunrinde, E.

- Rheumatology Research Foundation Medical and Graduate Student Preceptorship:
  Ogunrinde, E.
M & I Students’ Honors and Awards 2016-2017

- Presidential Scholar Award- appointment for the duration of 2017-2018 Interprofessional fellow: Happe, M.

- 10th International Conference on Complement Therapeutics, Trainee Travel Award: Patel, K.J.

- The International Federation of Pigment Cell Societies (IFPCS) Travel Award, Value $1000. Smith, A.S.
M&I Program Faculty (Dept of M+I)

- Eric Bartee
- Carl Atkinson
- Beichu Guo
- Azizul Haque
- Wei Jiang
- Christina Johnson
- Laura Kasman
- Zihai Li
- Bei Liu
- Hal May
- Jay Pandey
- Chrystal Paulos
- Michael Schmidt
- Adam Soloff
- Steve Tomlinson
- Paula Traktman
- Chentha Vasu
- Cynthia Wright
- Jennifer Wu
- Yi (Benny) Yang
- Xue-Zhong Yu
M&I Program Faculty (Other Dept)

- Craig Beeson
- Ken Chavin
- Gary Gilkeson
- Diane Kamen
- Keith Kirkwood
- Amanda LaRue
- Shikhar Mehrotra
- Eric Meissner
- Satish Nadig
- Tammy Nowling
- Jim Oates
- Titus Reaves
- Barb Rohrer
- Mark Rubinstein
- Caroline Westwater
- John Wrangle
- M. Rita Young
- John Zhang

Neuroinflammation:
Narendra Banik, Narayan Bhat, Inderjit Singh

Septic shock: James Cook
M&I Program Faculty Interests

- **Immunology**
  - Cancer immunology & Immunotherapy
  - Mucosal Immunology
  - Inflammation & Tolerance

- **Microbiology**
  - Bacteriology
  - Mycology
  - Virology
Cancer Immunology & Immunotherapy
Mucosal Immunology

Dendritic cells, dysbiosis & colon cancer (Li and Liu)

Dectin-1/TLR2 & mucosal tolerance (Vasu)

Inflammasome, colitis & colon cancer (Guo, Reaves)

Adoptive T cell therapy & microbiota (Paulos and Wu)

Th17 cell differentiation & microbiota (Yang, Liu and Li)

HOST FACTORS

MICROBES
Bacteriology, Mycology & Virology

Beeson (MTB)
May (environmental)
Schmidt (SA)
Yang (SFB and other commensals)

Westwater (Candida)
Vasu (dectin-1, commensals)

Bartee (myxoma)
Jiang (HIV)
Kasman (MCMV)
Meissner (HIV, HCV)

Soloff (HIV, SIV)
Traktman (vaccinia virus)
Wright (virus-host)
Increasing NIH Funding and Ranking

Net funding ($8.67 million)

Ranking for 2016 (increase to 34 from 96 in 6 years)
Recent NIH Grants (2016-2017)

- 1 T32
- 6 R01s
- 2 R43
- 3 R21
- 1 F grants

MUSC Dept. of Microbiology and Immunology
Entrepreneurship by M&I faculty

2014 INVENTOR of the YEAR!

ToleRaM Nanotech, LLC

INTREXON

CHARLESTON PHARMA

SPHINGOGENE, INC.

MFC TECH
2015 National Academy of Inventors Inductees
Breakthrough of the Year

Cancer Immunotherapy
T cells on the attack
We take pride in educating next generation leaders in microbiology and immunology

Questions:

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