“Developing the tools, technologies and knowledge to ensure 100 years of health for all people”
Institute for Quantitative Health Science and Engineering (IQ)

Christopher Contag, Director
Chair, Biomedical Engineering

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“What is this Building?”

“I don’t know, I just call it that Big Glass Empty Building”
Eight Thematic Areas
Built on Academic Strengths of MSU

Biomedical Engineering

Biomedical Devices
Developmental and Stem Cell Biology
Synthetic Biology
Systems Biology
Bioimaging
Precision Health Structural Biology
Neuro-engineering
From Zero to Over Two Hundred in Two Years

240 Faculty, Staff and students
30 BME Graduate Students
Total of 60 Graduate Students
37 Faculty in IQ
Representing 17 departments and 6 colleges
Productivity
Over 100 Publications in 2018
Support
$20M in Federal Grant dollars
“Culture eats strategy for lunch every day”

-Andy Grove-

Former Chairman of Intel
Building Bridges

Facility for Rare Isotope Beams (FRIB)

Radiochemistry
Nuclear Medicine

Spectrum

Radiology
Healthcare Partners

McLaren-MSU

Spectrum

Sparrow

Mary Free Bed
High Profile Programs—Brews and Views

Partnership with the Center for Ethics and Humanities in the Life Sciences

The Porcisapien: Humanization of Livestock

Should we genetically engineer our grandchildren?

Bot Doctors and Bot Companions: A Genie Already out of the Bottle

De-extinction: Who needs a pet dodo bird?

“It’s not my fault, my brain implant made me do it”

The Conversation

Laura Y. Cabrera
Assistant Professor of Neuroethics, Michigan State University

Jennifer Carter-Johnson
Associate Professor of Law, Michigan State University
10-million Genome Project—Genomic Health
Revolution(s) in Medicine

Personalized Medicine
Individualized monitoring and care

Precision Medicine
Molecularly targeted therapies

Precision Health
Redefining disease and developing innovative prospective therapies
Early Diagnosis and Prognosis

Cumulative Percentage of People Diagnosed at Each Stage

- Prostate
- Ovary
- Lung
- Pancreas

5-Year Survival Rate at Each Stage

Stage I
- Prostate: 80%
- Ovary: 60%
- Lung: 50%
- Pancreas: 40%

Stage II
- Prostate: 70%
- Ovary: 50%
- Lung: 40%
- Pancreas: 30%

Stage III
- Prostate: 60%
- Ovary: 40%
- Lung: 30%
- Pancreas: 20%

Stage IV
- Prostate: 50%
- Ovary: 30%
- Lung: 20%
- Pancreas: 10%
Entrepreneurship
“Because... everyone deserves a century of health”
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