IOWA HEALTH CARE | Holden Comprehensive Cancer Center

Shared Resources

ADAM DUPUY, PHD

Associate Director for Shared Resources

April 2, 2025

NCI Designated Comprehensive Cancer Center

CHANGING MEDICINE.
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Associate director for shared resources

- began in July of 2023
- Associate Professor of Anatomy & Cell Biology, PhD in cancer genetics
- Background in cancer genetics, forward genetic screens (transposon mutagenesis, CRISPR, RNAi)
- Completed Master's program in bioinformatics in 2015.
- Grants funded in mechanisms of therapeutic response in uveal melanoma and mechanisms of early progression in cutaneous melanoma.
- Founding director of the Cancer Biology Graduate Program

Current HCCC shared resources

BioMER

Carlos Chan, MD,PhD
Director

Biostatistics

Brian Smith PhD,
Director

Central Microscopy

Randy Nessler BGS
MBA, Director

Flow Cytometry

Zuhair Ballas PhD,
Director

Genomics

Kevin Knudtson PhD,
Director

High Throughput Sc[illegible]g

David Roman PhD,
Director

Population Research

Bradley McDowell
PhD, Director

Radiation Free Radical

Doug Spitz PhD,
Director

Viral Vector

Patrick Sinn PhD,
Director

New Developing Shared Resources

Human Immunology Core

Shared Resources Advisory Council

Gail Bishop
Flow Cyto, HIC

Betsy Chrischilles
Biostats, Pop Res

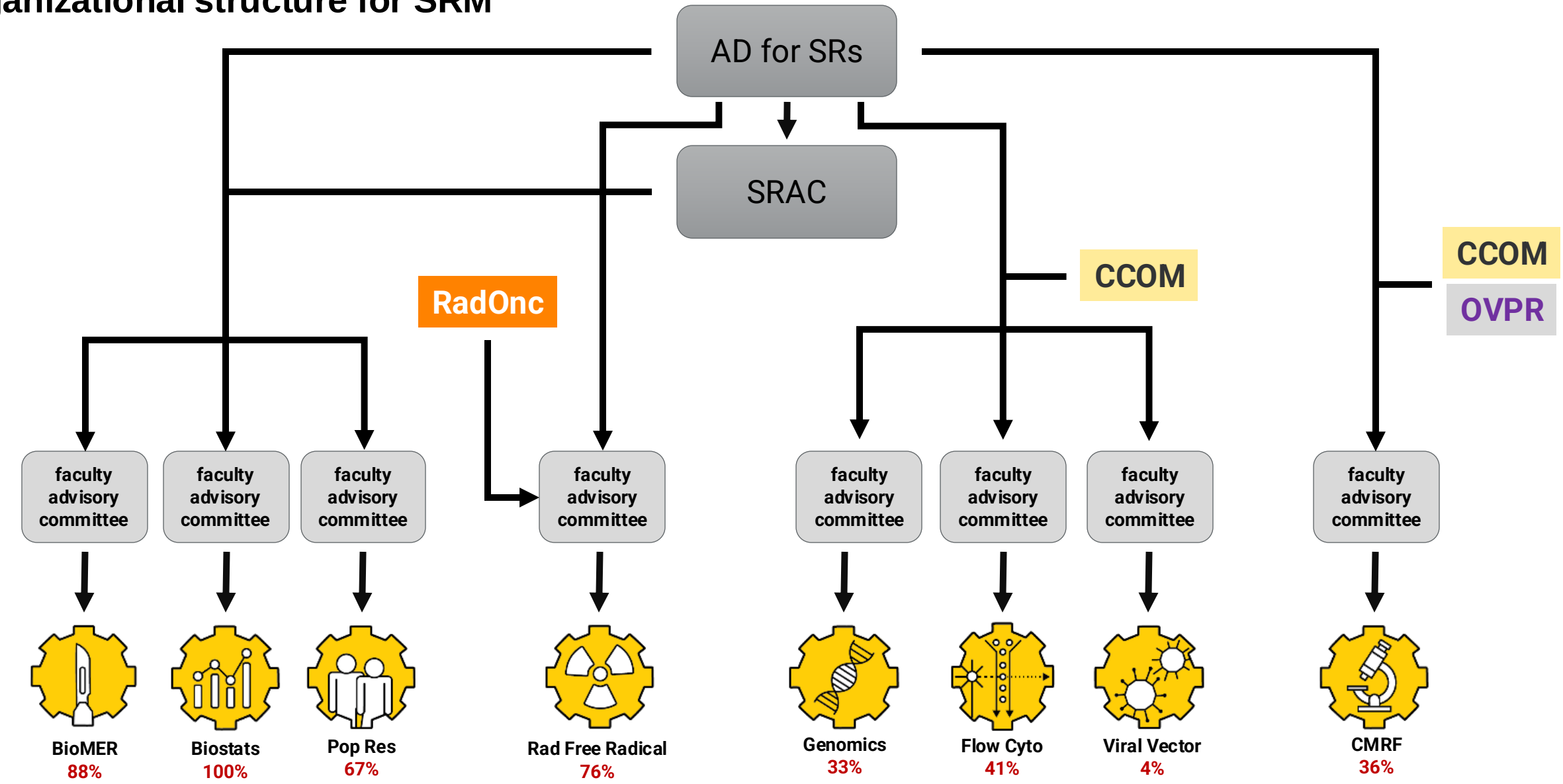
Christopher Stipp
CMRF

Ben Darbro
Genomics

Mike Petronek
Radiation Free Rad

- meet on ~quarterly basis
- develop & evaluate SR scorecard system
- advise AD for shared resources on new technologies/methods/cores needed to maintain competitiveness

Organizational structure for SRM



% of HCCC membership

SR scorecard strategy

- **Composite score from annual SR user survey**
  - ✓ Contains feedback on user fees, management effectiveness, service satisfaction, overall value
- **Cancer selectivity score**
  - ✓ % of users that are HCCC members
- **HCCC publication score**
  - ✓ % of HCCC member publications using the SR
- **NCI grant score**
  - ✓ % of total NCI grant SR expenditures spent on each SR
- **ROI from HCCC support**
  - ✓ Ratio of total discount provided to HCCC members to CCSG investment
- **Training contribution**
  - ✓ Assessment of effort given to training HCCC members, trainees, and staff

SR user survey

- Distributed in late 2024
- 51% overall response rate

Program	Utilization rate	Survey response rate
Cancer Genes & Pathways	56 %	70 %
Experimental Therapeutics	37%	53%
Free Radical Metabolism & Imaging	29%	38%
Cancer Epidemiology & Population Science	21%	45%

2024 SR user survey

			BioMER	Biostats	CMRF	Flow Cyto	Genomics	Pop Sci	FRRB	Viral Vector	Human Immuno	Microbiome
How frequently did you utilize services	1	1 - 2 times	2.0	1.4	2.0	2.5	2.0	2.0	2.7	1.2	1.5	1.6
	2	3 -4 times										
	3	5 or more times										
user feee assessment	4	a great value	3.3	3.436	2.972	3.298	3.064	3.3	3	3.188	3.316	3.4
	3	reasonable										
	2	too high										
	1	cost prohibitive										
management effectiveness	1	Not effective at all	4.0	4.1	3.9	4.6	4.3	4.4	3.8	4.0	4.5	4.2
	2	Slightly effective										
	3	Moderately effective										
	4	Very effective										
	5	Extremely effective										
		Unable to assess										
Service satisfaction	1	Extremely dissatisfied	4.5	4.3	4.0	4.9	4.5	4.6	3.9	3.9	4.3	4.8
	2	Somewhat dissatisfied										
	3	Neither satisfied nor dissatisfied										
	4	Somewhat satisfied										
	5	Extremely satisfied										
Overall value	1	I expected better service given the cost.	2.2	2.3	2.0	2.5	2.2	2.5	2.2	2.1	2.4	2.4
	2	The service provided is about what I expected for the cost.										
	3	The quality of the service exceeded my expectations given the cost.										
composite score			16.0	15.6	14.9	17.8	16.0	16.8	15.6	14.4	16.0	16.4

SR tracking for HCCC publications

IOWA

Congratulations, our records indicate that you have recently published a paper!

We are reaching out to you to gather insights into the HCCC resources and funding that have played a role in your publication. This quick three question survey will help us quantify the use of HCCC shared resources and any pilot grants that have been utilized in the research for your published work.

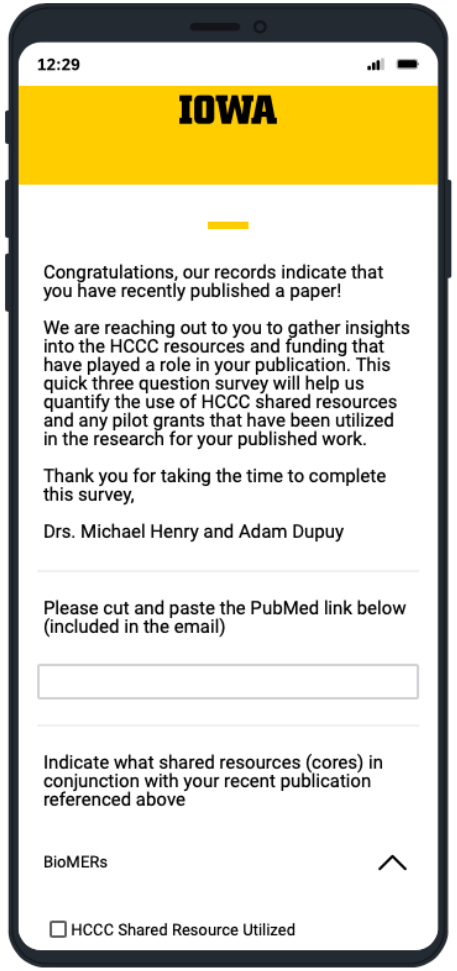
Thank you for taking the time to complete this survey,

Drs. Michael Henry and Adam Dupuy

Please cut and paste the PubMed link below (included in the email)

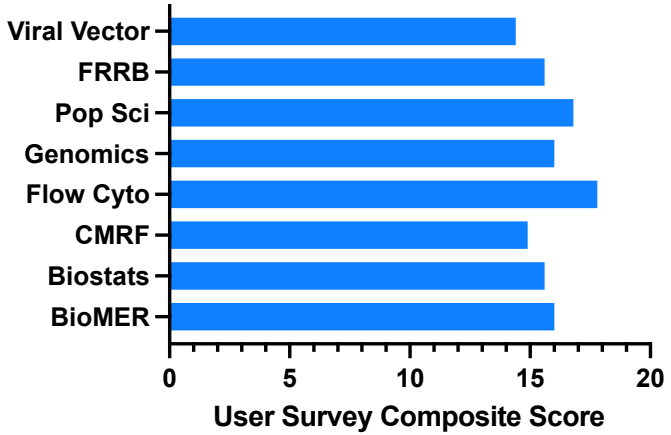
Indicate what shared resources (cores) in conjunction with your recent publication referenced above

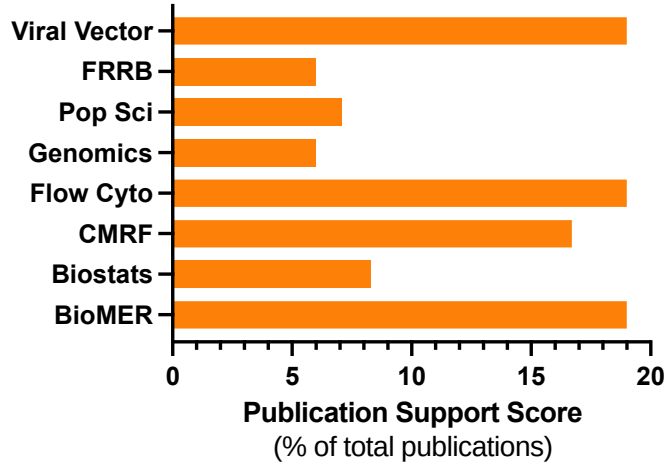
	HCCC Shared Resource Utilized
BioMERs	☐
Biostatistics	☐
Central microscopy	☐
Flow Cytometry	☐
Genomics	☐
High Throughput Screening	☐
Population Research	☐
Radiation Free Radical	☐
Viral Vector	☐
Human Immunology Core	☐
Microbiome Core	☐
Bioinformatics	☐
None of the Above	☐

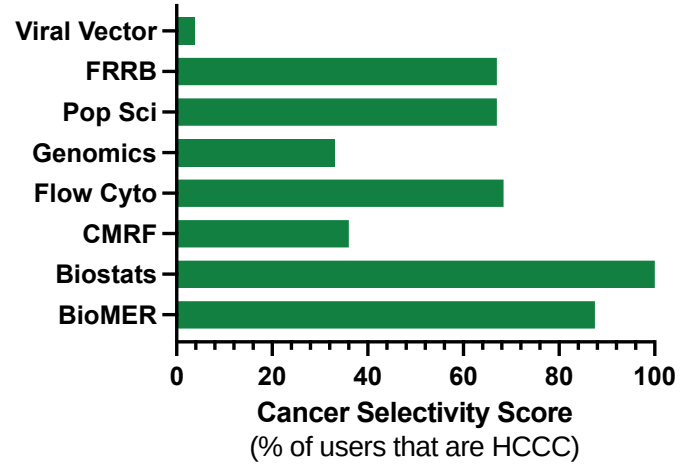


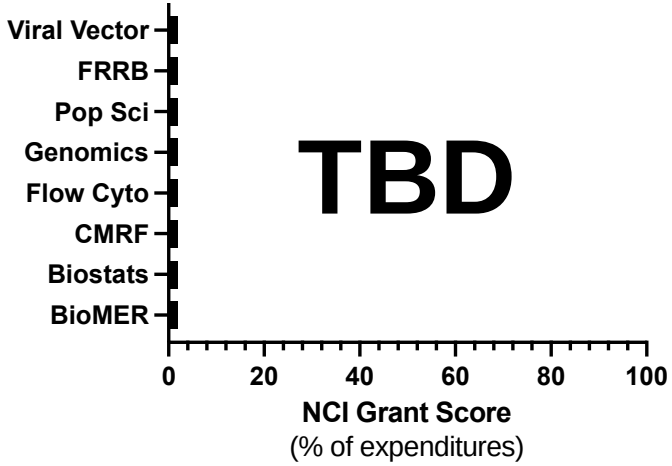
- increase accuracy of core usage for HCCC member publications
- investigating options for tracking core usage associated with grant submissions

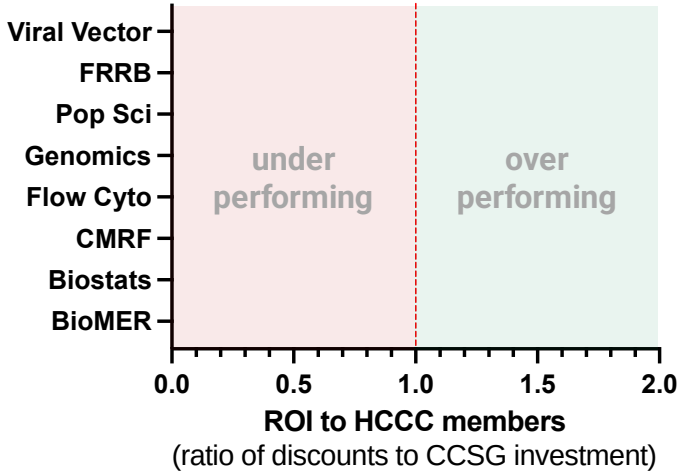
Current SR scorecard report (2024)

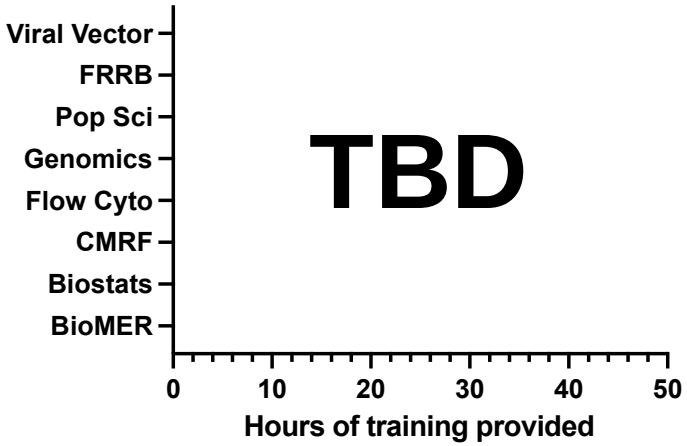












SRM Affinity Group

- Collaborative group of shared resources AD's from a large group of NCI-designated Cancer Centers
- Goal = develop best practices for SR management in response to CCSG requirements
- Monthly meetings with presentations by AD's who have recently undergone site visit
- SharePoint provides access to materials from other centers (e.g., grant sections, review comments, etc.)
- Recently joined with East Coast CC Alliance (Cancer Center SR Consortium)
- Planned conferences for SR AD's and administrators at various locations nationwide

Next steps…

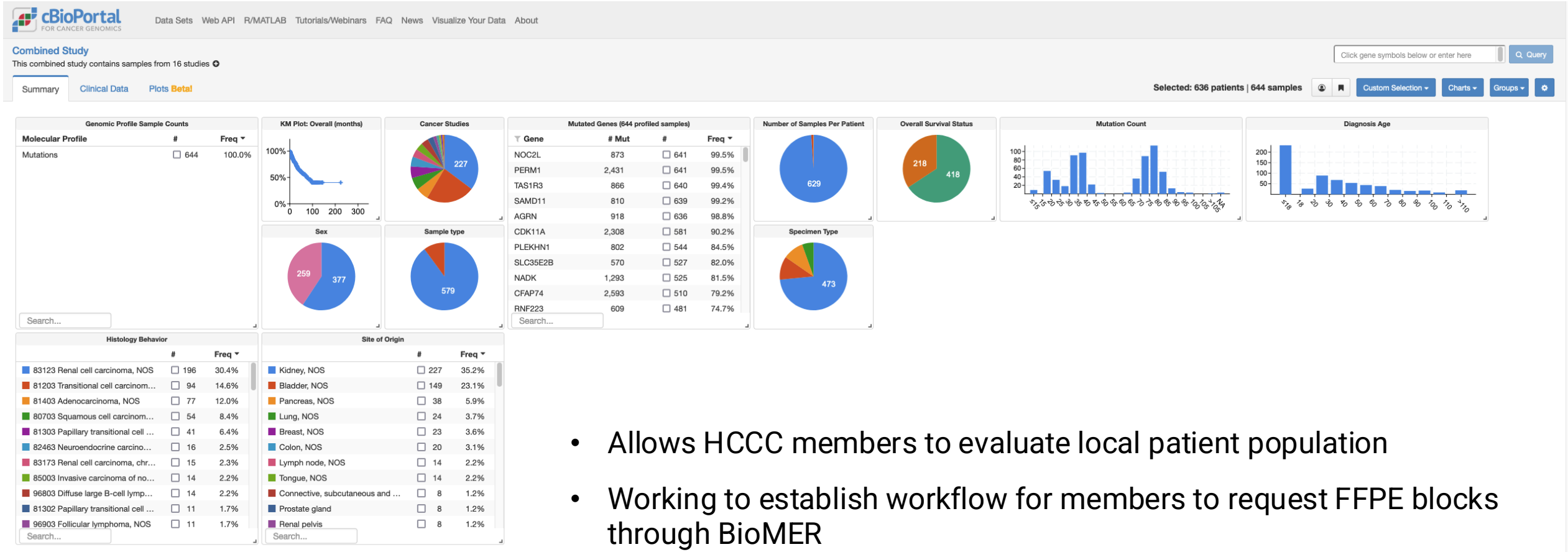
- SRAC to deliberate about SR's to include in CCSG renewal
- Hold discussions with HCCC membership regarding potential developing SR's
  - ✓ Proteomics
  - ✓ Bioinformatics
  - ✓ PDX / organoid
  - ✓ Animal procedure
- Work with CCOM administration to develop financial tools to develop a SRM dashboard showing monthly utilization of SR's on HCCC member grants
- Revise user survey strategy to request review immediately after SR service is utilized.

Addressing bioinformatics within the HCCC

- Ad posted to recruit PhD-level bioinformatics specialist
- PhD in Integrative Biosciences, Bioinformatics and Genomics from Penn State in 2016
- Prior positions in microbiology and microbiome work at Medical College of Wisconsin, University of Toronto, Scripps Research Institute
- Hired in January 2023
- Primary initial efforts involved with developing ORIEN projects with HCCC investigators.

Juan Antonio Raygoza Garay, PhD
Bioinformatics Specialist

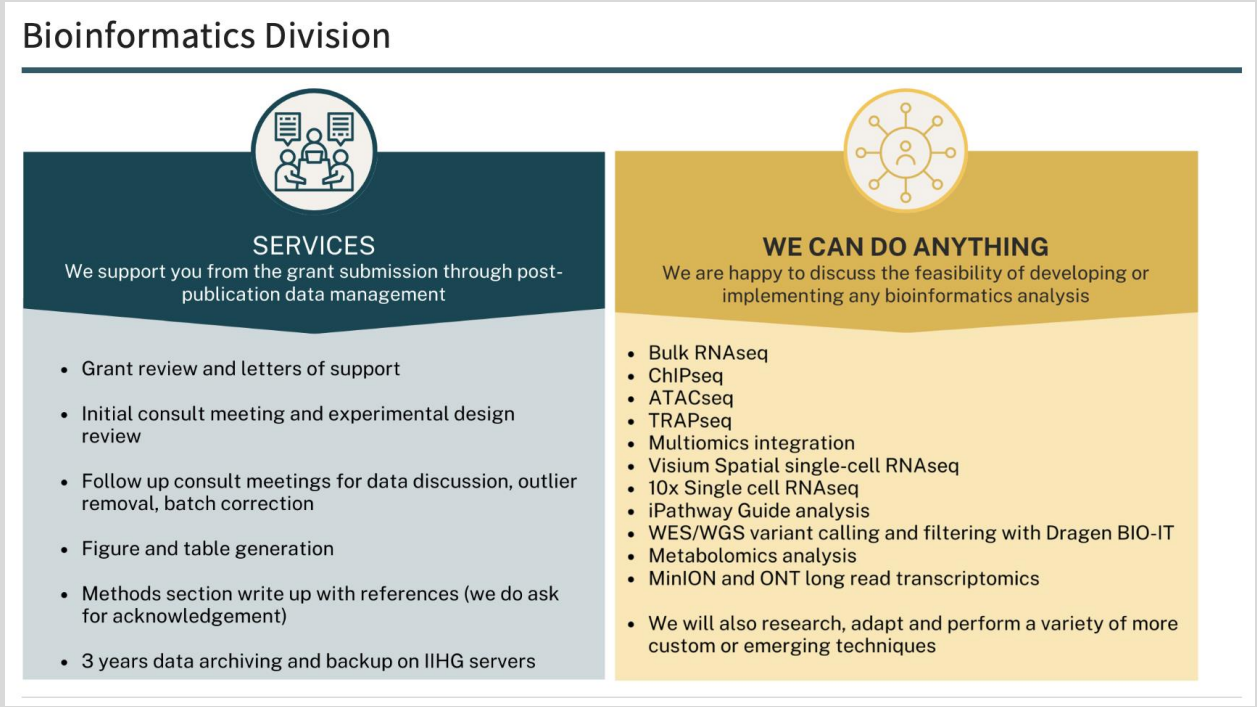
Local cBioPortal (ORIEN +)



- Allows HCCC members to evaluate local patient population
- Working to establish workflow for members to request FFPE blocks through BioMER
- TPC → Comparative Pathology Lab → investigator

Current bioinformatic capabilities

Iowa Institute of Human Genetics



HCCC bioinformatics support
(Juan Antonio Raygoza Garay)

Collaboration with faculty with bioinformatics training

Proposal to increase bioinformatic capabilities

- **Recruitment of new faculty**
  - ✓ Brings new expertise to campus
  - ✓ Expands available faculty to teach bioinformatics
  - x Faculty are not likely interested in helping labs with basic bioinformatic needs
- **Provide bioinformatics training to existing faculty / staff / trainees**
  - ✓ Offers novel skills for trainees
  - ✓ Expands pool of scientists with bioinformatics skills for smaller investment
  - x Takes longer to address needs of HCCC members
  - x Limited number of “trainers” currently

Cross-training summer bootcamp
(collaboration with OCCET)

- ✓ Advanced knowledge of biology
- ✓ Understanding of high throughput technologies
- ✓ Training in experimental design
- x No coding expertise

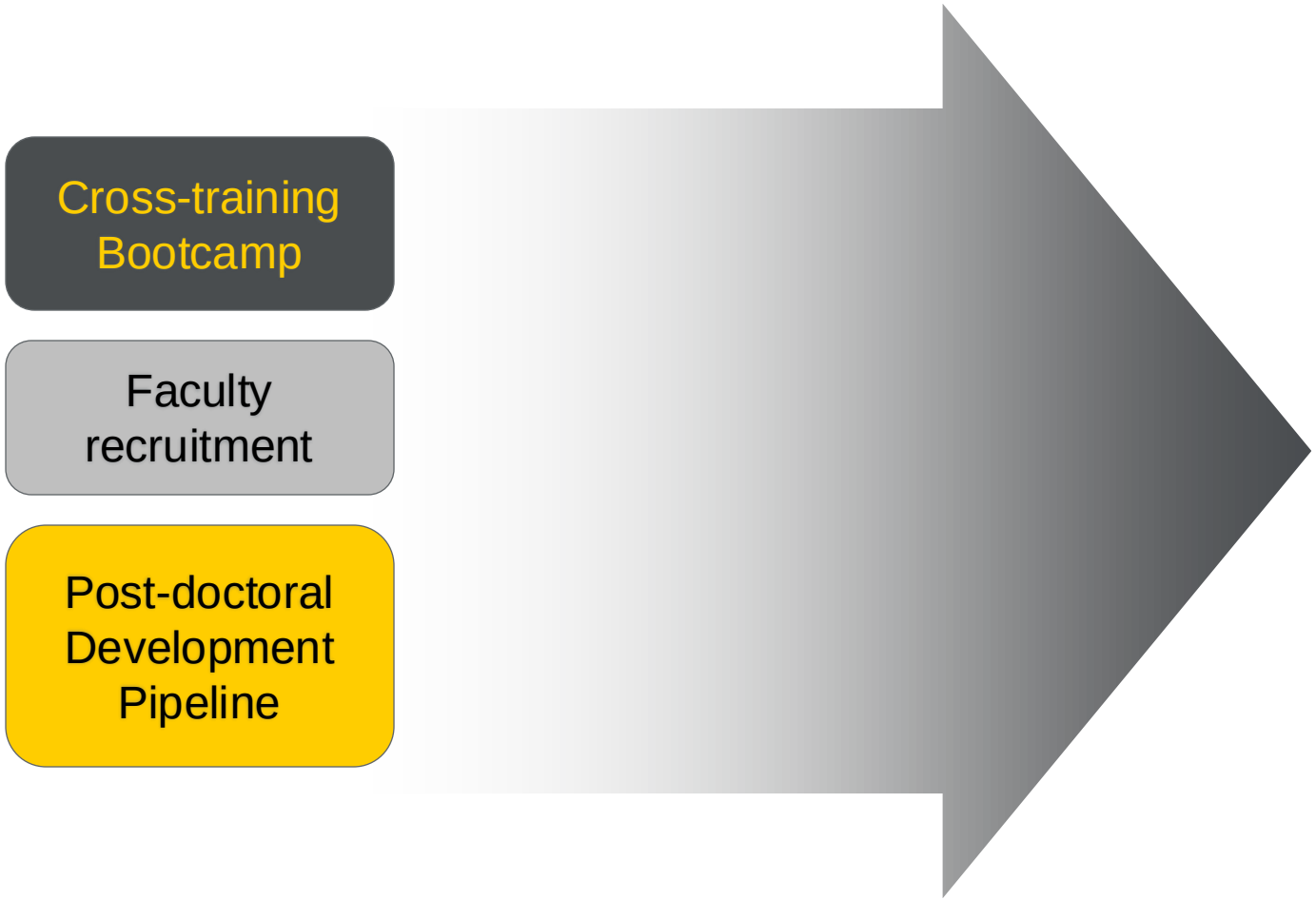
- ✓ Prior experience in data sciences
- ✓ Coding experience
- x No background in biological sciences

- HCCC provides space and resources for group to meet over a 4-8 week period each summer
- HCCC faculty facilitators with bioinformatics skills could assist, but students would be primarily responsible for teaching each other the basics of their domain knowledge

Post-Doctoral Bioinformatics Development Pipeline

- Formal program that provides funding for MS in health informatics
- Ideal for early post-doctoral trainees
- Participants would become embedded in collaborative research group within the HCCC (support from sponsoring faculty required)
- Program intended for trainees interested in developing a research program involving more advanced bioinformatic / computational biology techniques
- Program would be more attractive to post-doctoral applicants if HCCC could provide a pathway to independence for successful trainees

The long game of bioinformatics



- Expanded pool of trained bioinformaticians at all academic levels
- Self-sustaining community of learners and educators
- Positions the HCCC to respond rapidly to changes in technology

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Questions?

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