



UNIVERSITY OF IOWA
HOLDEN
COMPREHENSIVE
CANCER CENTER

University of Iowa Health Care



Cancer Genes and Pathways

EAB meeting, April 2025



CO-LEADER

Dawn Quelle, PhD



Assn LEADER

Erin Talbert, PhD



CO-LEADER

Rebecca Dodd, PhD



Program Snapshot

Newest Members

CGP Members (n=47)

38 Full
9 Associate



Elaine Binkley
*Optical glioma,
uveal melanoma
models & therapy*



Tony Pedley
*Purine metabolism
Myc-driven
cancers*



Katheryn Rothenberg
*Drosophila – cell
migration / metastasis*



Ransome van
der Hoeven
*C elegans –
EGFR/Ras drugs*

CGP Pubs FY2024	
Total PUBS	81
High Impact	10 (12%)
Intra-Programmatic	24 (30%)
Inter-Programmatic	27 (33%)
Multi-Institutional	39 (48%)

Grant Funding source	Direct costs 2/2025 (#)	
NCI Peer-review	32%	\$2,452,713 (11)
Other NIH		\$3,513,256 (15)
Other Peer-review		\$1,172,943 (9)
Non-Peer-review		\$544,820 (9)
Total		\$7,683,732 (44)



CGP - New Grant Highlights

- ● **Songhai Chen** (MPI, 2024 - 2029)
 - *Role of the CTLH E3 ubiquitin ligase in breast cancer progression* (NCI R01 with Weigel [ET])

Carlos Chan (2024 - 2029)

- *Cancer MoonshotSM Biobank* (NCI)

● **Rebecca Dodd** (2024 - 2027)

- *Targeted Therapy for MPNST Metastasis* (DoD)

● ● **Po Hien Ear** (2024 – 2026, 2025 – 2027)

- *Targeted approach of Nrf2 inhibition in neuroendocrine cancers* (DoD)
- *Role of Nrf2 in SBNET drug resistance and development of a novel inhibitor* (NETRF)

● **Dawn Quelle, Rebecca Dodd** (MPI, 2024 – 2026)

- *Improving Immunotherapy in MPNSTs* (GFF)

● **Maria Spies** (2024 – 2029)

- *Assembly and Dynamics of Molecular Machines in Genome Maintenance* (NIGMS, R35)



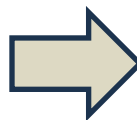
*Supported by
HCCC pilot grant
funding*



*Pitch-Your-Aims
review*

CCSG review issues & our responses

1. Aims are relatively broad, potential synergy of faculty in each aim not fully realized, unclear vision to enhance cohesion
2. Role in prioritizing research and 'hand off' of discoveries
3. Unclear how addressing topics relevant to catchment area



- Increase CGP focus, research overlap, and interactions
 - New membership
 - Topic-driven retreats
 - *New Specific Aims*
- Dedicate pilot funds to facilitate the translational continuum
- Added more members studying Iowa cancers / risk factors, prioritized for support



New Specific Aims

Distribution of CGP member research

Aim 1

Determine mechanisms of tumor evolution and metastasis

33

Aim 2

Characterize tumor immunology and microenvironment

19

Aim 3

Define mechanisms of therapy response & resistance in tumors

28

** Many PI projects
address multiple aims*



Program Activities

Membership
review, new
member
selection

Distribute
funds for
CGP
translational
research

Lead focused
team mtgs
⋮
-Metastasis
-DNA damage
-Sarcoma
-Translational
oncology

Iowa NET
SPORE
annual mtg
⋮
July 2024

- *Project talks*
- *EAB / IAB
feedback*
- *Sep grant
submission*
- **Score = 20**

Nation's **ONLY**
neuroendocrine cancer SPORE
(Specialized Programs of Research Excellence)

- Funded 2015 – 2022
- MPI – *Quelle, Howe & Menda [FRMI]*
- Collab with Rutgers CC
- **3 translational projects**

P1 - Immunotherapy in NETs

P2 - Lung NEN / Alpha PRRT & CXCR4 targeting

P3 - GLP1R/GIPR agonists in promoting NET progression



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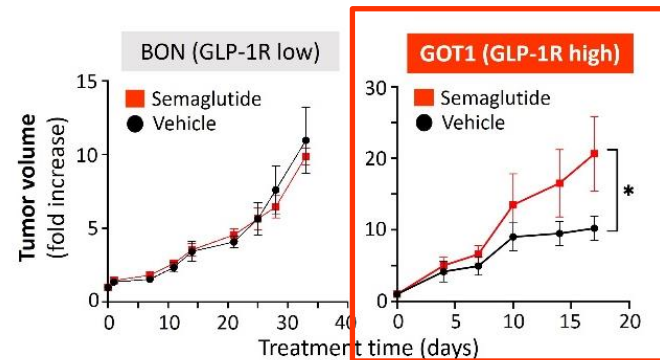
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Po Hien Ear

Oberley &
ACS-IRG
awards



**GLP1R/GIPR agonists in
promoting NET progression**



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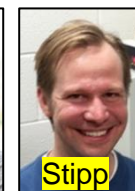
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Led ½ day
retreat with
ET – Drug
Resistance
in Cancer
⋮
Aug 2024

- *7 CGP talks*
- *Vibrant panel discussions*
- *Oberley award to Kenny & CGP team*

Colin Kenny
Uveal melanoma
progression &
therapy resistance





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ET & FRMI
– Cancer
Models
⋮
Feb 2025

- *8 CGP talks*
- *Vibrant panel discussions*
- *Informative model surveys*



Program Activities

How can HCCC best help you build upon or employ new cancer models in your research?

Funding

Model working groups

Provide model lists
center wide

Nothing :)

Consolidation and
organization of models
by investigator/lab

Facilitate connections
with specific model
experts

\$\$\$.

Funding

Led ½ day
retreat with
ET & FRMI
– Cancer
Models

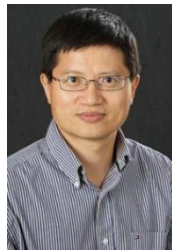
⋮

Feb 2025

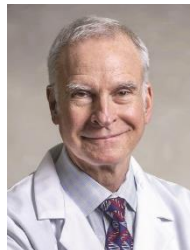
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Research Highlight 1 – Role and targeting of GPCR signaling in breast cancer

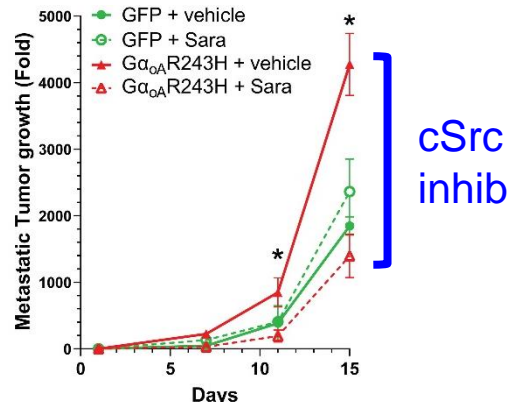
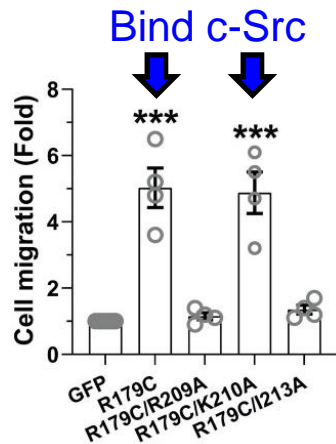
Songhai
Chen



Ron Weigel
[ET]



ID active $G\alpha_{i/o}$
mutations in
patient tumors



NCI R01 CA282699,
2024-2029

Molecular

Preclinical

Oberley Award, Wenger Awards

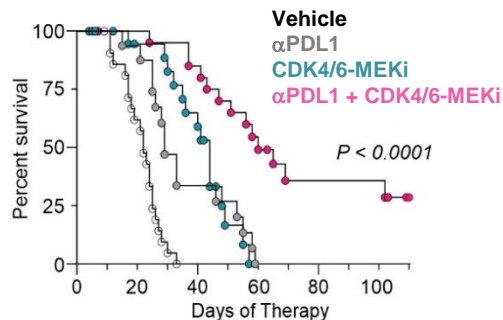
“Repurposing FDA-approved
drug to treat TNBC”

Personalized therapy
targeting c-Src to inhibit
TNBC metastasis in
patients with active
 $G\alpha_{i/o}$ mutations or
elevated $G\alpha_{i/o}$ signaling



Research Highlight 2 – Improving immunotherapy in sarcoma

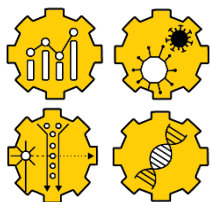
Clin Cancer Res 2023, PMID: 37410426



TMA analyses of
patient-matched
benign PNF vs MPNSTs

FISH IHC RNAseq
RABL6A, CDK & Ras signaling ← C-Map

Potential Drug Therapies
for MPNSTs



Compare mouse and
human tumor immune
landscapes & PBMCs ...
uncover biomarkers &
mechanisms, justify P2
trials

IITSI award to Milhem, Rieth,
Quelle, Dodd –
Trial of CDK4/6i + αPD-1
in UPS patients
NCT06113809



FUNDING

- Mezhir and Sarcoma MOG awards (entire team)
- NCI P01 Supplement (Quelle, Gordon [ET], Dodd, Byrne [ET] w/ others)
- NINDS R01 (Dodd / Darbro / Quelle with Tanas, Breheny - thru 2027)
- GFF grant (Quelle / Dodd with Darbro – 1/2024-12/2026)

CGP Integration with COE

Program Liaison



Erin Talbert, PhD
Assistant Professor
Dept. of Health &
Human Physiology

Iowa Cancer Consortium Members FY 2025

Joined

Active

8

3

Expert Review

- 1 researcher provided expert review for the Cancer in Iowa Report

Researcher Videos on COE Website

- Dawn Quelle, PhD: Improving immunotherapy for sarcomas and NETs
- Michael Wright, PhD: Prostate cancer

Engaging with COE for Input/Data/Connections

- 2 researchers sought connections to pancreatic cancer survivors to review and provide feedback on grant
- 1 researcher sought CAB input on increasing BioMER tissue sample diversity

COE Collaborative Webinar Series

- 6 researchers participated

Iowa Cancer Registry 99 Counties Project

- Project aims to enhance community engagement & education around cancer prevention and control
- 2 researchers participating

CGP Integration with OCCET and ELC

Invited external speakers to HCCC Research Seminar Series

Emerging Leaders Council

- 3 members 2024-2025

Mentoring

- 16 CBIO grad, 8 summer undergrad, 5 ICARE Postbacs

Trainee fellowships and presentation awards

- Sheehan (Dodd), Lingo (Quelle), Borbon (Howe)

American Cancer Society IRG seed grants

- Reviewers (Dodd, Pufall, Henry, Buchakjian, Quelle, Houtman [Chair])



Po Hien Ear
Assn Prof, PhD



Colin Kenny
Assn Prof, PhD



Vincent Wagner
Assn Prof, MD



Alexa Sheehan
Molecular Medicine
CTF Young
Investigator Award



Joshua Lingo
Cancer Biology
NCI F31 Diversity
fellowship



Luis Borbon, MD
Surgical Resident
NET SPORE
HCCC Poster
awardee

CGP Future Directions and Goals

- **Foster research into relationship between cancer and obesity**
 - Iowa expertise in obesity-related research
 - **Bing Li**, CGP member leading the charge
- **Expand clinical collaborations to advance translation and heighten CGP research impact**
 - Lead & participate in targeted basic & translational mtgs
 - Oral Cancer and NET SPOREs
 - HemOnc Translational Oncology Group
 - Immunotherapy Working Group
 - Joint program retreats on uveal melanoma, NF1 tumors
 - Use of BioMER/ORIEN, **Human Immunology Core** (**Houtman**)
 - New **P01 and SPORE efforts** in sarcoma, pancreatic cancer (FRMI)
 - Clinical trials (IITSI grants w/ clinical colleagues, SPORE efforts)



Bing Li



Consultation & Assay
Development

Specimen Processing
& Banking

Molecular Immunology

Cellular Immunology



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Cancer Genes and Pathways

Thank you!

Discussion