

# Integrated Biosystems Research

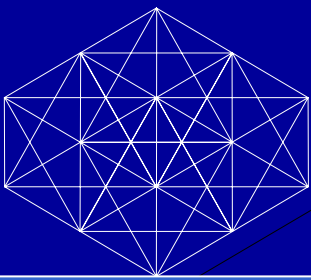
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Clinical Research

## Integrative Clinical Research

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# Integrated Biosystems Research

## Clinical Research

Team: ASU, U of A, TGen, Mayo, St. Joseph's/BNI, PCH, Banner, VA

Co-Chairs Ellen Feigal, M.D and Joan Rankin Shapiro, Ph.D., M.D.

Patricio Reyes, M.D.

Barbara Pockaj, M.D.

Richard S. Burns, MD.

Kathleen Matt, Ph.D.

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David Carpentieri, M.D.

Vicki Chandler, Ph.D.

Jessica Boklan, M.D.

David Alberts, M.D.

Eric Reiman, M.D.

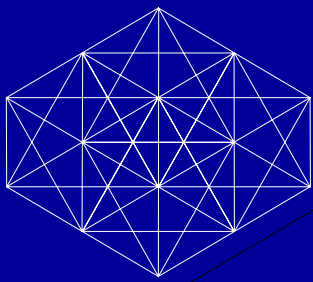
Robert Gillies, Ph.D.

Daniel Von Hoff, M.D.

Rafael Fonseca, M.D.

William Duckworth, Ph.D.

Leif Bergsagel, M.D.



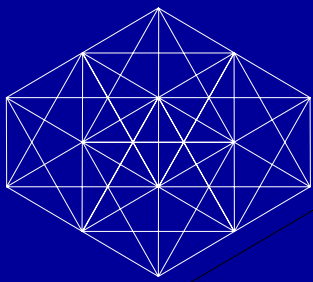
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## Clinical Research

### Regional Research

- What biomedical problems or research challenges are being addressed by the different regional institutions?
  - Perceived obstacles from the initial efforts in clinical applications of proteomics
    - issues of reproducibility of the applications of proteomics techniques
    - statistical overfitting
    - observational bias



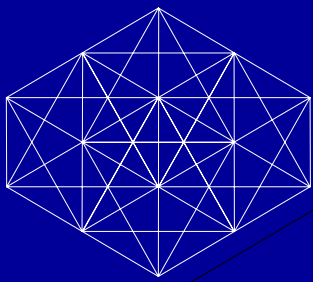
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## Clinical Research

### Regional Research

- What biomedical problems or research challenges are being addressed by the different regional institutions?
  - Technology and systems barriers
    - limited interoperability across instruments and platforms
    - difficulty in measuring and analyzing large numbers of features simultaneously,
    - insufficient capability for developing and characterizing high-quality reagents
    - lack of standards and protocols
  - Technology challenges yet to be addressed
    - sensitivity, identification, quantitation, resolution and validation



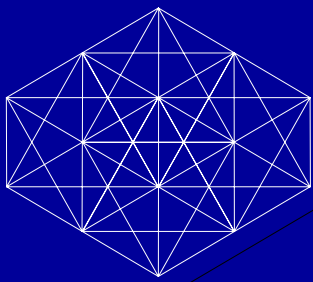
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## Clinical Research

### Regional Research

- What biomedical problems or research challenges are being addressed by the different regional institutions?
  - Lack of effective communication between various disciplines – technology, biology, clinical epidemiology, biostatistics and clinician
    - Clinicians need access to experts in the technology; Technology experts not attuned to the pertinent clinical questions that they can address with the technology



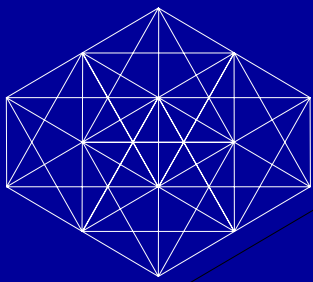
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## Clinical Research

### Regional Research

- What biomedical problems or research challenges are being addressed by the different regional institutions?
  - Need for experts knowledgeable about the nature and status of the technologies as well as their utilities
  - Clinicians lack time free from clinical service to participate in research activities
  - Culture clash – Clinicians may view the proteomics analysis of clinical specimens as a service, whereas proteomics staff at universities more interested in discovery-based projects with researchers interested in sharing the science behind the experiments



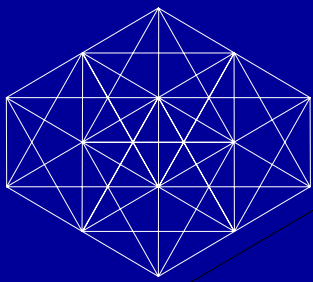
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## Clinical Research

### Regional Research

- What biomedical problems or research challenges are being addressed by the different regional institutions?
  - Lack of seed monies to develop the preliminary data essential to compete for peer-reviewed funding
  - Lack of access to high quality biospecimens and standardized process for collection
    - Hospitals need help building infrastructure for collecting biospecimens for research purposes
  - Lack of clinical trials infrastructure – Arizona needs more robust mechanisms to partner across its biomedical research institutions in a more concerted manner
  - Barriers for multi-institutional collaborations
    - IP, indirect cost sharing, IRB



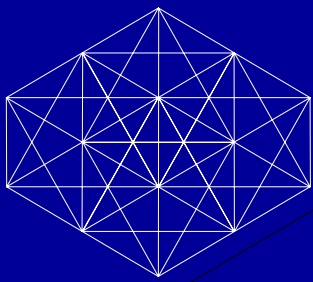
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## Clinical Research

### Regional Research –

- What specific approaches are being taken or technical hypotheses are being explored to address these problems?
  - Seminars, conferences and/or workshops as venues for the academic physician and the basic scientist to learn about techniques and clinical issues
  - Development of endowed centers to support academic physicians and basic scientists
  - Support from foundations to initiate programs



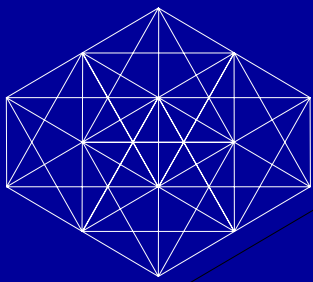
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## Clinical Research

### Regional Resources –

- What resources, skills, facilities, tools and equipment are currently being employed?
  - Active role of development offices
  - Partnerships within the local community
  - Sharing of instruments and/or the development of regional core facilities



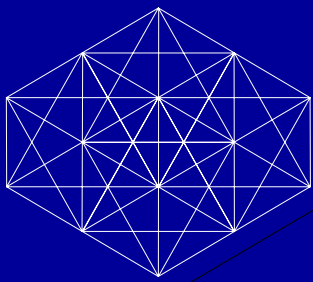
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## Clinical Research

### Regional Needs –

- What are current or anticipated needs for resources, capabilities, skills, equipment, or processes to advance more effective research?
  - Wet laboratory space within the healthcare centers
  - Vivarium that is capable of housing both large and small animals.
  - Consortium developed within the disciplines



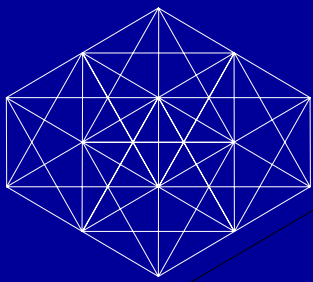
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## Clinical Research

### Regional Synergy –

- How might this area specifically benefit or be made more effective through enhanced proteomics capabilities?
  - Provide investigators in Basic & General Clinical Research with tools needed for proteomic analyses
  - Provide services and establish strong collaborative relationships in focused areas of cell protein expression, protein quantitation, protein-protein interactions and protein structure and function
  - Development of tissue banks



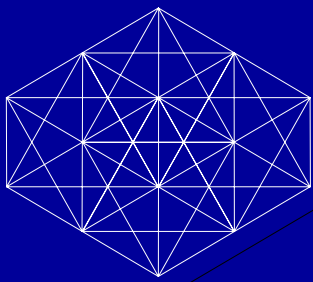
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## Clinical Research

### Regional Synergy –

- What are the high priority recommendations from the Team?
  - Interactive participation between basic scientists and academic physicians – this will permit specific questions to develop into research investigations = translational research



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# Questions and Answers?