



Cancer Research Program

**E. Shyam P Reddy, Ph.D.
Professor and Co-Director,
Cancer Biology Program,
GCC Cancer Symposium,
November, 2009**

MISSION OF THE MOREHOUSE SCHOOL OF MEDICINE CANCER RESEARCH PROGRAM

The Morehouse School of Medicine Cancer Research Program includes **basic scientists, population scientists, behavioral and social scientists,** and **clinicians** united in conducting research aimed at reducing or eliminating racial and ethnic disparities in cancer incidence, morbidity, and mortality.

Goal 1

Conduct **basic research** to explore the mechanisms of **cancer etiology and treatment** and to understand racial differences in cancer biology.

Goal 2

Conduct **population research** to explore the **epidemiology** of cancer with particular attention to racial patterns of incidence and mortality, and conduct **health services research** to identify disparities in cancer prevention, diagnosis, treatment and outcomes.

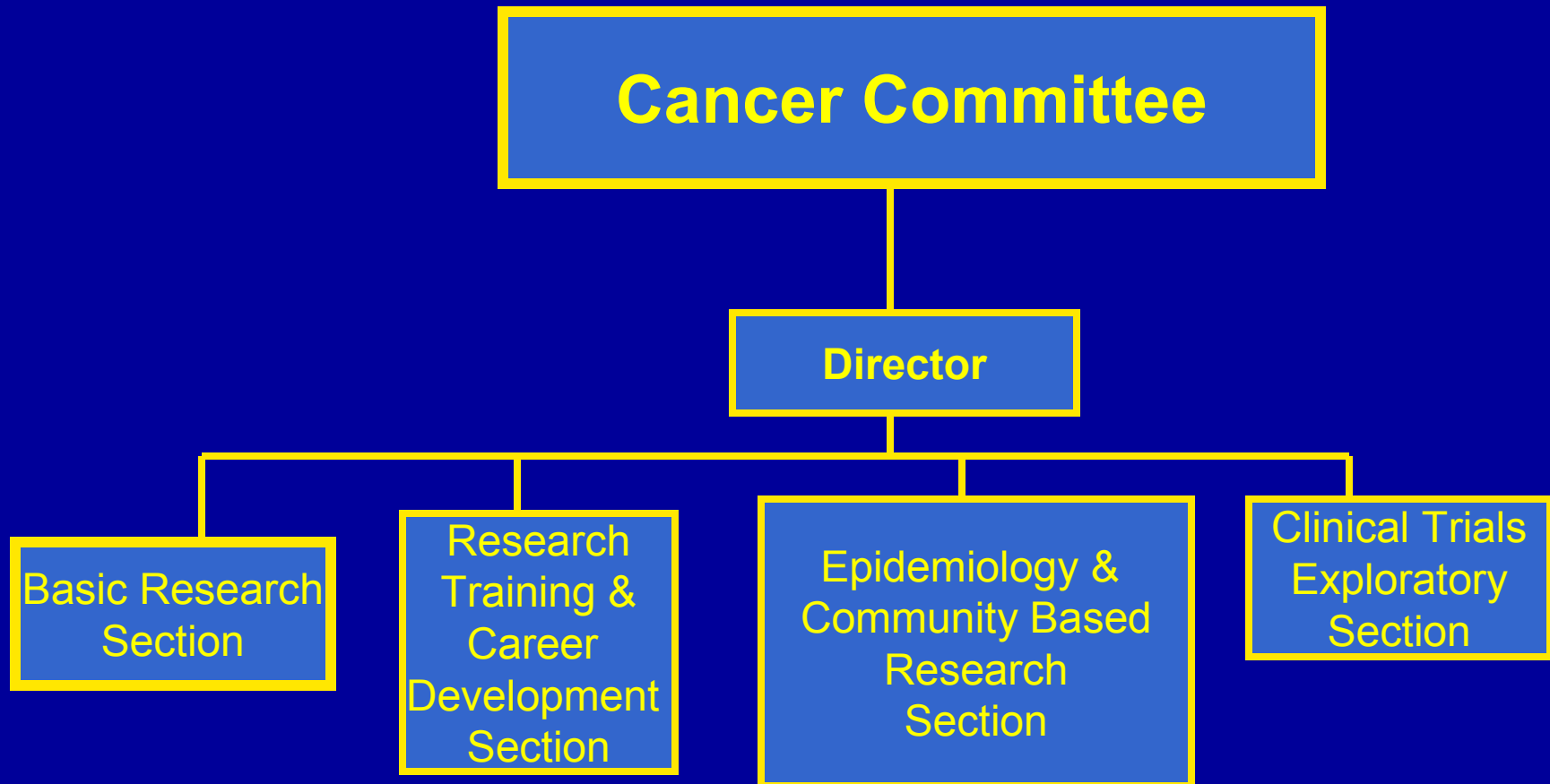
Goal 3

Conduct **community-based participatory research** to attain a better understanding of community knowledge, practices, attitudes, and beliefs toward cancer and to design and test interventions to reduce cancer incidence and mortality among minority and underserved populations.

Goal 4

Conduct dissemination research on improved methods of distributing current cancer information to clinicians and participate in recruitment to clinical trials of cancer prevention and treatment.

Organization



Section Heads

- **Basic Science:** Shyam Reddy, PhD & Veena Rao, PhD
- **Epidemiology and Community-Based Research:** LeRoy Reese, PhD
- **Clinical Trials Exploratory:** Roland Matthews, MD
- **Research Training and Career Development:** Elvan Daniels, MD

Cancer Committee

- Program Director: **D. Blumenthal, MD, MPH**
- Heads of sections: **Drs Reddy, Rao, Reese, Mathews, Daniels**
- VP/Assoc Dean for Research Admin: **Sandra Harris-Hooker, PhD**
- Nursing/CRC rep: **Patricia Callahan, RN**
- CAU: **Shafiq Khan, PhD**
- Outside expert: **Edward Partridge, MD (UAB CCC)**

Section Membership

Basic Science Research (Reddy/Rao)

- 13 Faculty

Clinical Trials Exploratory (Matthews)

- 9 Faculty (including 4 oncologists)

Population/Community-based Research (Reese)

- 12 Faculty

RTCD (Daniels)

- 5 Faculty

MSM Cancer Research Funding

- Basic: \$5,845,511 *
- Community/Epi: \$10,144,626*
- Clinical: \$920,000
- Training: \$300,000
- TOTAL: \$17,210,137

*U54 (PIs: Dr Blumenthal, Dr Reddy) assigned to community/epi

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MSM Cancer Research Funding

- **NCI: \$7,959,660**
- **GCC: \$3,000,000**
- **DOD: \$2,449,511**
- **CDC: \$2,399,616**

ARRA Cancer Funding

- **U54-ARRA Postdoc Funding** **\$275,000**
- **ARRA Administrative Supplement:**
Community Health Worker **\$280,000**
- **ARRA Administrative Supplement: Junior**
Faculty Member **\$520,000**

Cancer Biology Program
Dept. of OB/GYN
Morehouse School of Medicine
Georgia Cancer Center for Excellence
at Grady Memorial Hospital



Cancer Biology Program



CONTACT INFORMATION:

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Cancer Biology Program at Morehouse School of Medicine satellite site located at the Georgia Cancer Center for Excellence at Grady is under the leadership of Drs Rao and Reddy. This program is in the early stages of development and its mission is to develop an internationally recognized program in Cancer Research at MSM so as to position MSM at the forefront of the fight against cancer.

The goals of this program parallels some of the priorities established in the National Cancer Institute's "extraordinary Opportunities in Cancer Research" in prevention, treatment, causes and cures of cancer.

There is significant disparity of cancer outcome for African Americans when compared with white Americans. Our goal is to understand the molecular mechanisms behind the cancer disparities and their impact on minority populations. Understanding the mechanism of activation of these cancers at the molecular level will give us a clue for the increased incidence rates found in these minority groups. Some of the cancer models that are currently being used include Breast, Ovarian, Prostate, Ewing Sarcoma, Lung, Colon, Cervical, Pancreatic, Skin, Leukemias and Lymphomas. Our goal is to develop function based diagnostic and therapeutic approaches to human cancers.

Other members of the Cancer Biology faculty include: Felix Akhionbare Ph.D, Ganapathy Bhat Ph.D, Harvey Bumpers M.D, Alex Davidson Ph.D, Kamala Dutt Ph.D, Yasuo Fujimura Ph.D, Ruben Rene Gonzalez Ph.D, Ward Kirin Ph.D, Roland Matthews M.D, Julian Menter Ph.D, Joel Okoli M.D, Gary Sanford Ph.D, Winston Thompson Ph.D, Xuebiao Yao Ph.D



CANCER BIOLOGY PROGRAM

MISSION

- This program is in the early stages of development and its mission is to develop an internationally recognized program in Cancer Research at MSM so as to position MSM at the forefront of the fight against cancer in particular to eliminate cancer disparities.

PROGRAM OVERVIEW

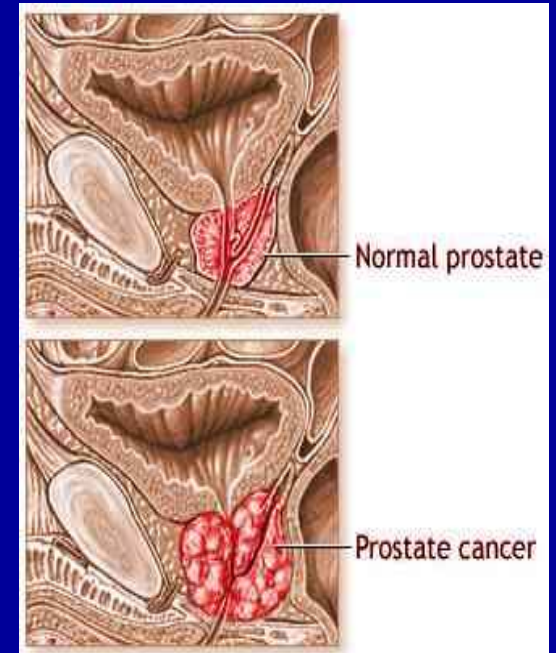
- The goals of this program parallels some of the priorities established in the National Cancer Institute's "extraordinary Opportunities in Cancer Research" in prevention, treatment, causes and cures of cancer.
- Efforts will be focused on reducing the cancer disparities among minority populations.
- Some of the cancer models that are currently being used include Breast, Ovarian, Prostate, Ewing Sarcoma, Leukemia's and Lymphomas.
- The goal is to develop function based diagnostics and therapeutic approaches to human cancers.

Faculty: Ongoing Research

Dr. E. Shyam P. Reddy: Professor and Co-Director, **GCC Distinguished Cancer Scholar**, Cancer Biology Program, Department of OB/GYN

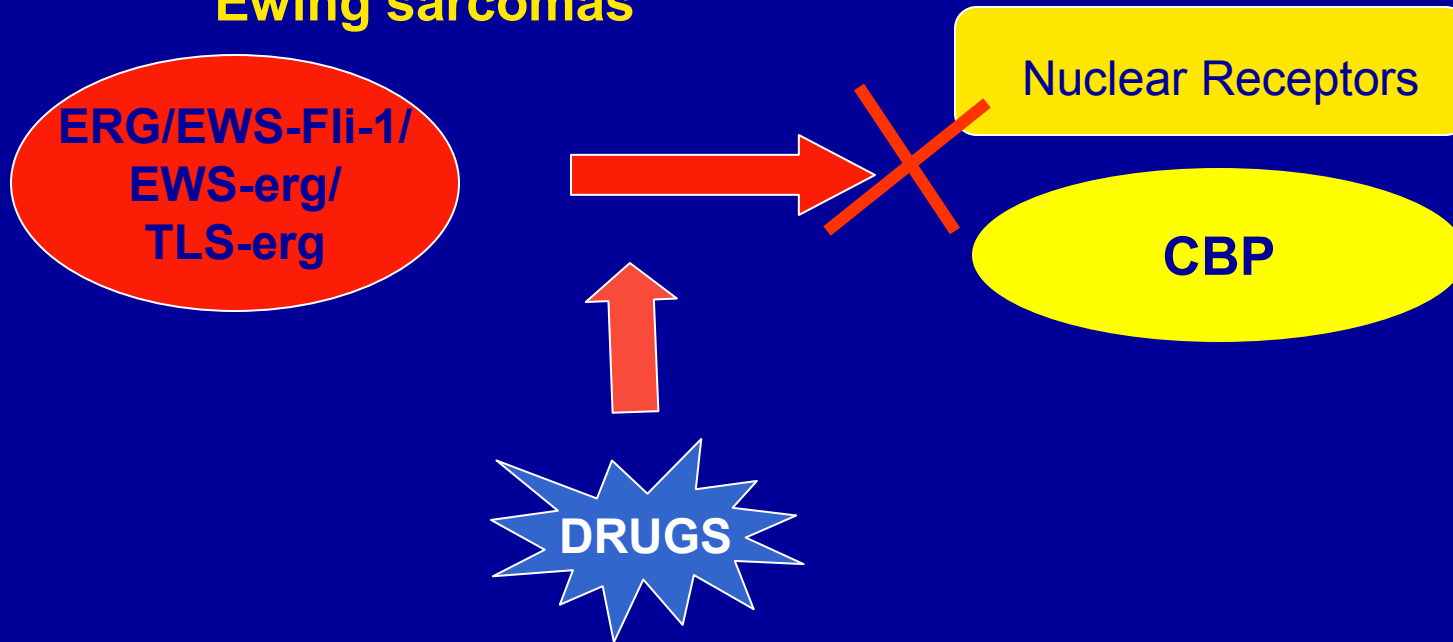
Functional role of ETS and fusion Onco-proteins in Prostate cancers, Leukemia's, Lymphomas and Sarcomas. Function-Based Therapeutic Approaches to Human Cancer.

ERG gene discovered by Drs Reddy and Rao is involved in 70% of Prostate cancers



■ **Ewing Sarcoma**

- **Dr. Shyam Reddy: Function-based therapeutic approaches to Prostate cancer, Leukemias and Ewing sarcomas**



Developed novel cell based Functional assay

These Therapeutic Agents showed anti-cancerous properties with no significant effect on normal cells

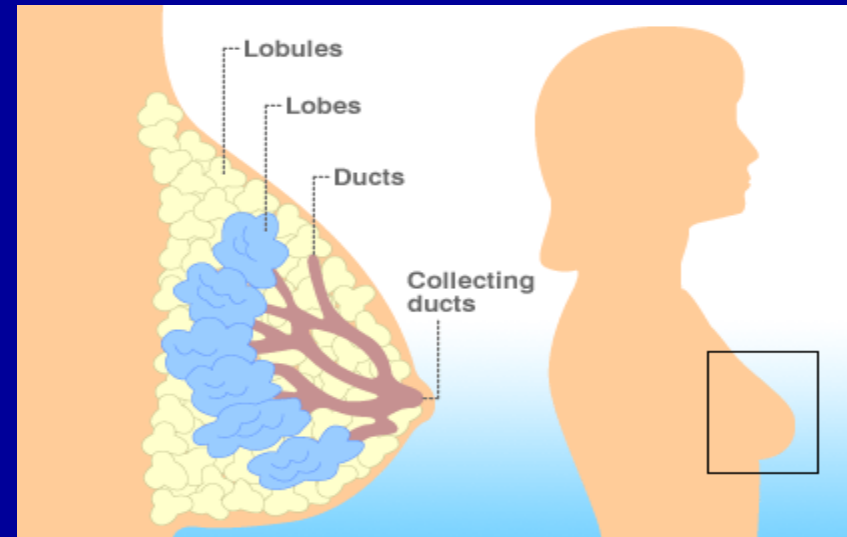
Novel Protein-Translocation Independent N-Glycosylation

Recently Dr Reddy and his colleagues have discovered novel post-translational mechanism (PTING) that will have global effect on the gene Expression, differentiation, protein turnover, cell death, cancer and other Human diseases.

(Please see the poster for details)

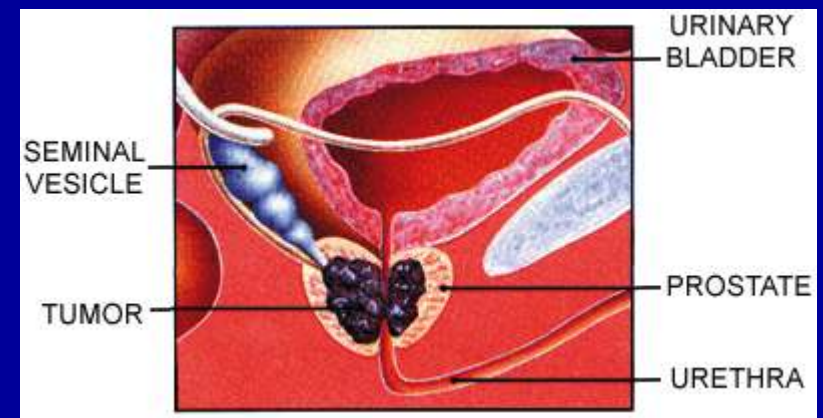
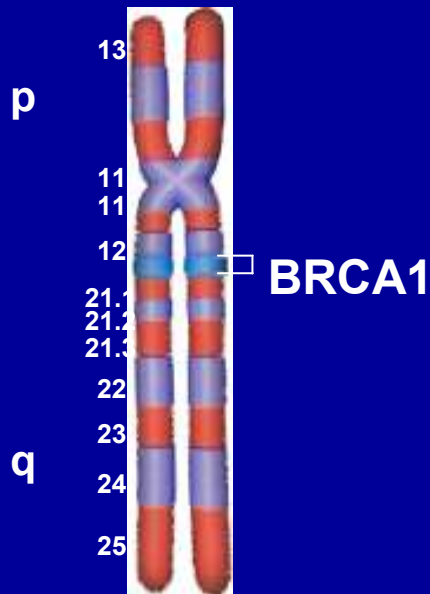
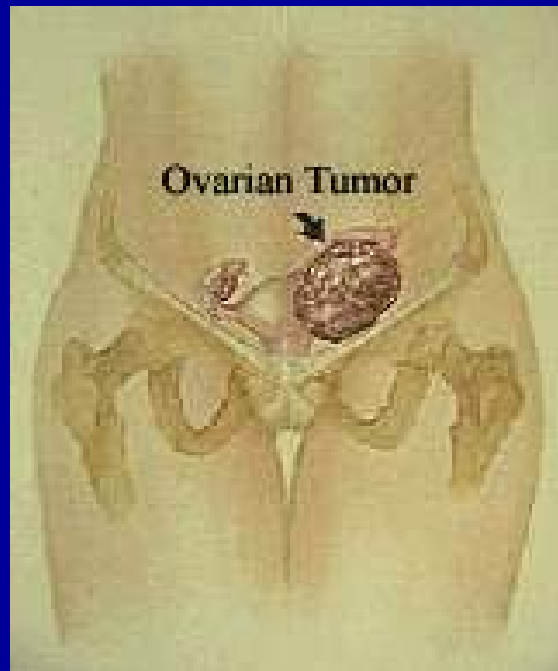
Dr. Veena N. Rao: Professor and Co-Director, **GCC Distinguished Cancer Scholar**, Cancer Biology Program, Department of OB/GYN

Functional Dissection of ELK-1 and BRCA1 Tumor Suppressor Genes: Role in Breast, Ovarian and Prostate Cancer progression.



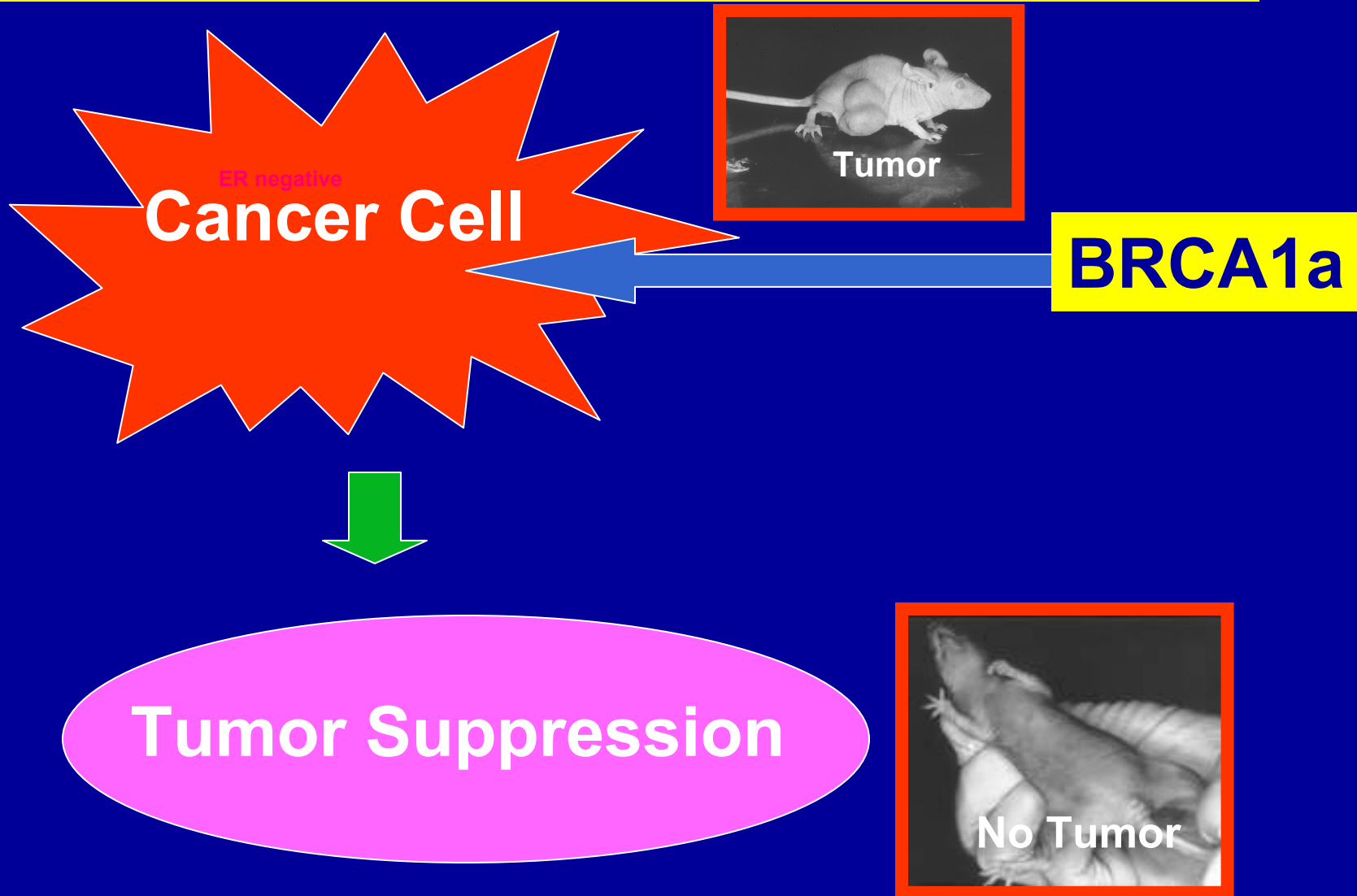
Breast Cancer

Ovarian



Prostate cancer

Antitumor activity of BRCA1 in Breast, Ovarian and Prostate Cancer Cells



XENOGRAFT PRECLINICAL MODELS for CANCER

How and why BRCA1 dysfunction results in tissue- specific breast and ovarian cancers.

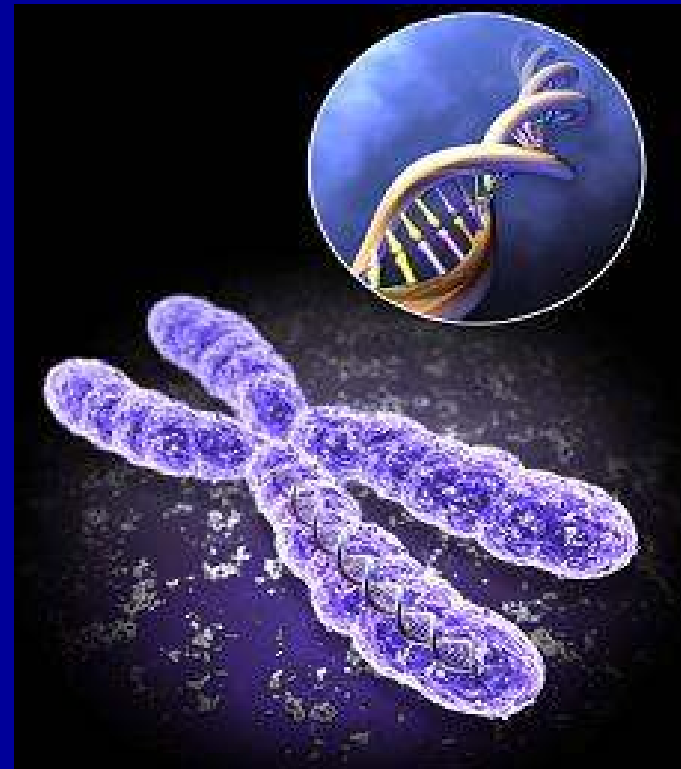
**Dr Rao is presenting this novel finding in Basic
Cancer breakout session**

- **Dr. Yasuo Fujimura:**
Research Instructor , **Cancer
Biology Program,**
Department of Obstetrics
and Gynecology.
- **Development of Proteomics
based Therapeutic
Approaches to Human
Cancers (in collaboration
with Dr Reddy and Dr Rao)**

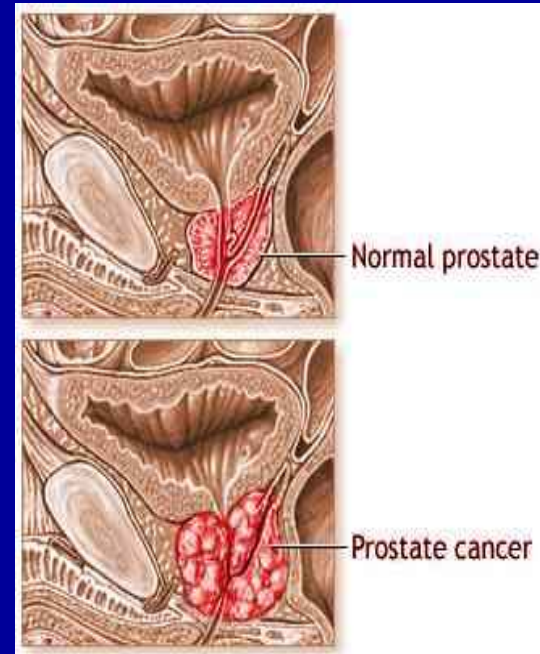


Department of Physiology

- **Dr. Xuebiao Yao,**
 - Professor, Georgia Cancer Coalition **Distinguished Cancer Scholar**
 - Mechanisms of mitotic chromosome segregation. Establishment and maintenance of cell polarity.
- **Dr R. Sridaran,** Professor,
 - Sridaran/Tsang: Ovarian GnRH and its possible role in cisplatin resistant ovarian cancer



- **Dr. Ganapathy Bhat:** Research Instructor, Cancer Biology Program, Dept of OB/GYN
- **Role of ERG and ELK-1 in prostate cancer (in collaboration with Dr Reddy and Dr Rao)**

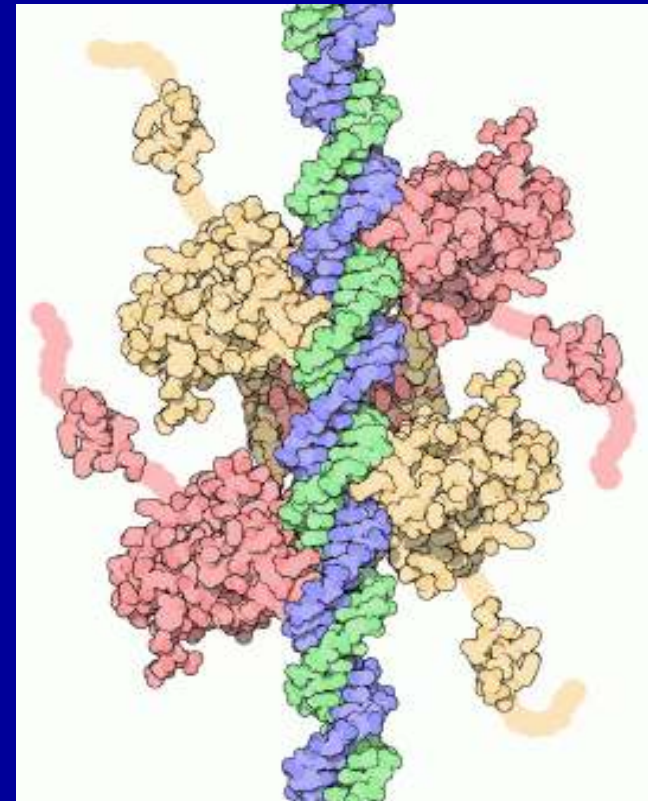


Department of OB/GYN

- **Dr. Winston Thompson:** Associate Professor
- **Understanding the antiproliferative and tumor suppressor effects of prohibitin in ovarian cancers.**

Dr. Roland Matthews: Professor and Chairman of OB/GYN, **GCC Distinguished Cancer Scholar.**

Role of prohibitin in ovarian cancers

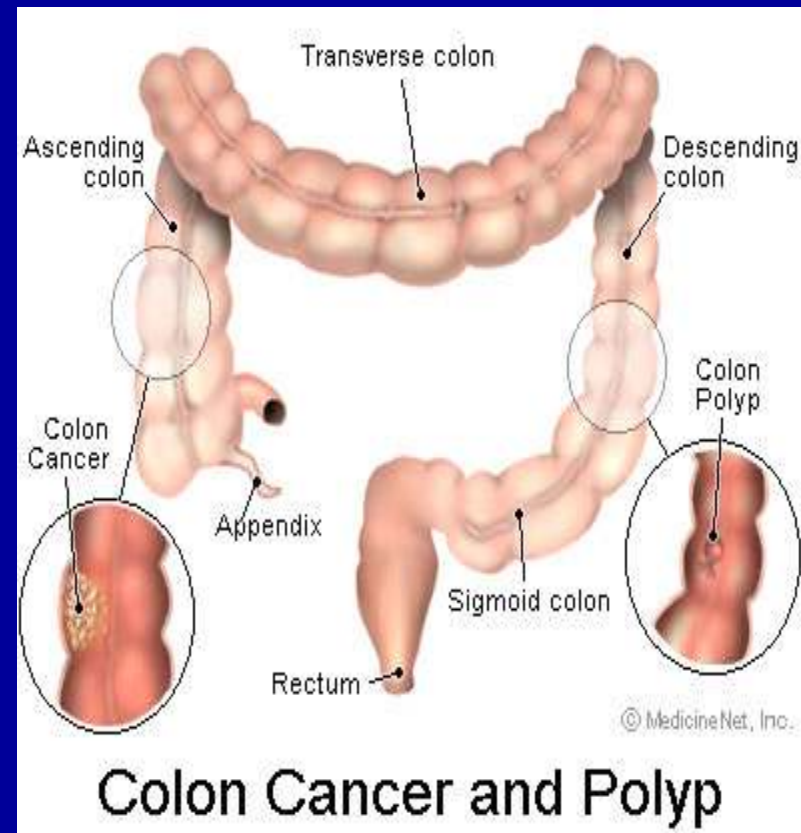


Department of Surgery

- **Dr. Harvey Bumpers**, Professor and Chairman: Department of Surgery

- **Role of Novel Cytotoxic Viral protein Nef on the Growth and Metastasis of human colorectal cancer.**

(in collaboration with Dr. V. Bond, Dept of Microbiology, Immunology and Biochemistry)



Department of Medicine

- Dr. **Julian Menter**, Research Professor
- Photochemistry and photobiology of skin cancer and skin aging; photo protection by fabric materials.

- Dr **Felix O. Aikhionbare**, Research Assistant Professor,

- Mitochondrial DNA Mutations in Epithelial Ovarian Tumor Progression



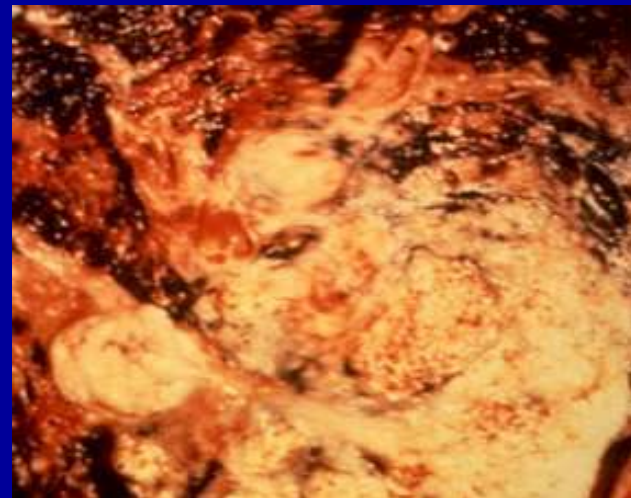
Department of Pharmacology and Toxicology

- Dr. **Ward Kirlin**,
Associate Professor
- Chemical carcinogenesis and toxicology, molecular regulation of enzyme induction pathways involved.



Department of Microbiology, Biochemistry and Immunology

- **Dr. Gary Sanford, Professor**
- **Modulation of lung growth, maturation, and function, remodeling of the pulmonary vasculature; cellular and molecular studies of the role of a soluble lectins in these processes.**
- **Dr Ruben Rene Gonzalez, Associate Professor, GCC Distinguished Scholar**
- **Role of leptin and cytokines/growth factors in reproductive immunology and Breast cancer**



Department of Pathology

- Dr. **Sandra Harris-Hooker**, Associate Professor, Associate Dean/Vice President for Research, Program Director, MBRS
- Dr. **Kamla Dutt**: Professor
- Retinal cell biology, cell commitment, differentiation, tissue engineering, human retinal cells.



Department of Anatomy

•**Dr Alec Davidson**, Assistant Professor

•**Nutritional Manipulation of Circadian Rhythms and Cancer**

Community-based Grant-funded Projects

Dr D. Blumenthal

Dr LeRoy Reese, Dr Elvan Daniels, Dr D. Satcher

- **Southeastern US Collaborative Center of Excellence for the Elimination of Disparities (SUCCEED) – A REACH US Project**
- **Colorectal Cancer Screening Intervention Project**
- **Ethno cultural and regional variations in prostate cancer knowledge, attitudes, and screening behaviors of African-American and African-Caribbean (Jamaican) Black men in the U.S.**
- **Cancer Information Service**
- **Cancer Prevention & Control Research Network**
- **National Black Leadership Initiative on Cancer - Community Networks Program**
- **HPV Vaccine Attitudes & Beliefs among Minorities**

Activities that are ongoing in the Cancer Biology Program at Georgia Cancer Center for Excellence, Morehouse School of Medicine at Grady Memorial Hospital

- **Cancer Biology lecture series by basic and clinical faculty.**
- **Cancer Biology literature survey presentations by undergraduate, masters, graduate and MD/Ph.D. students and High school students.**
- **Cancer Colloquium lecture series for Ph.D and MD/PhD students.**
- **Basic cancer research training for clinicians**

Mentorship in Cancer Research

Students within and outside MSM

- **Developed training for undergraduate students via Howard Hughes, Mar U Star, MBRS programs, Vivian Thomas program for high school students. (students from MSM, Spelman, CAU, GSU, Emory, University of Pennsylvania, NYU, Morehouse College,).**
- **Developed Career development training for clinical junior investigators at MSM via RCMI and U-54 grants.**
- **Developed Training for MS, PhD and MD/PhD students via lectures for students in MSM as well as GSU, Emory, CAU and Spellman.**

**Strengths of the Cancer Biology Program,
Georgia cancer center for excellence,
Morehouse school of Medicine
Grady Hospital**

- **Strong team of faculty, who has expertise in Molecular Cancer Biology to mentor and train minority junior faculty and students in basic and translational Cancer Research**

ACKNOWLEDGEMENT

We are grateful to Georgia Cancer Coalition for their support in establishing Cancer Biology Program at Georgia Cancer Center for Excellence, Grady Memorial Hospital, Morehouse School of Medicine, Atlanta



Thank You