Experience and Impact of P20 Program

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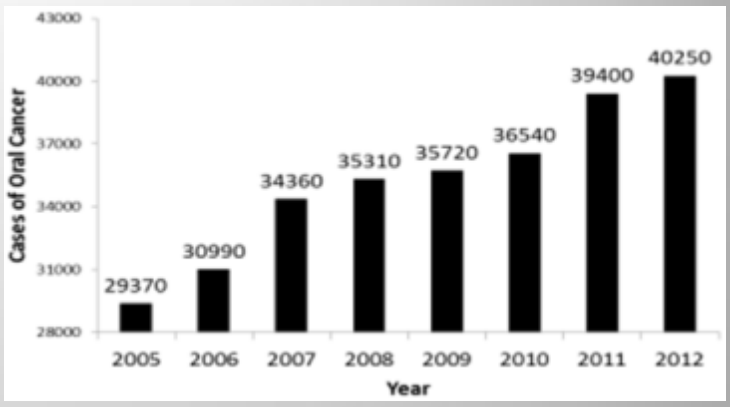
Background of P20 Program

- Howard/Hopkins partnership on head and neck cancer translational research and education program (P20 CA118770)
- Program started on 9/1/2005 and ended on 8/31/2010
- Total budget $792,724 for Howard University

Oral Cancer Health Disparity

- Incidence of oral cancer has increased 37% from 2005 to 2012.
- Males are twice as likely as females to be diagnosed with and to die from oral cancer.
- African-American (AA) males suffer a higher incidence and poorer survival of oral cancer.
- DC has the highest incidence and lowest survival rate of oral cancer in the nation.

Incidence of Oral Cancer in USA



Comparison of the Incidence Rate

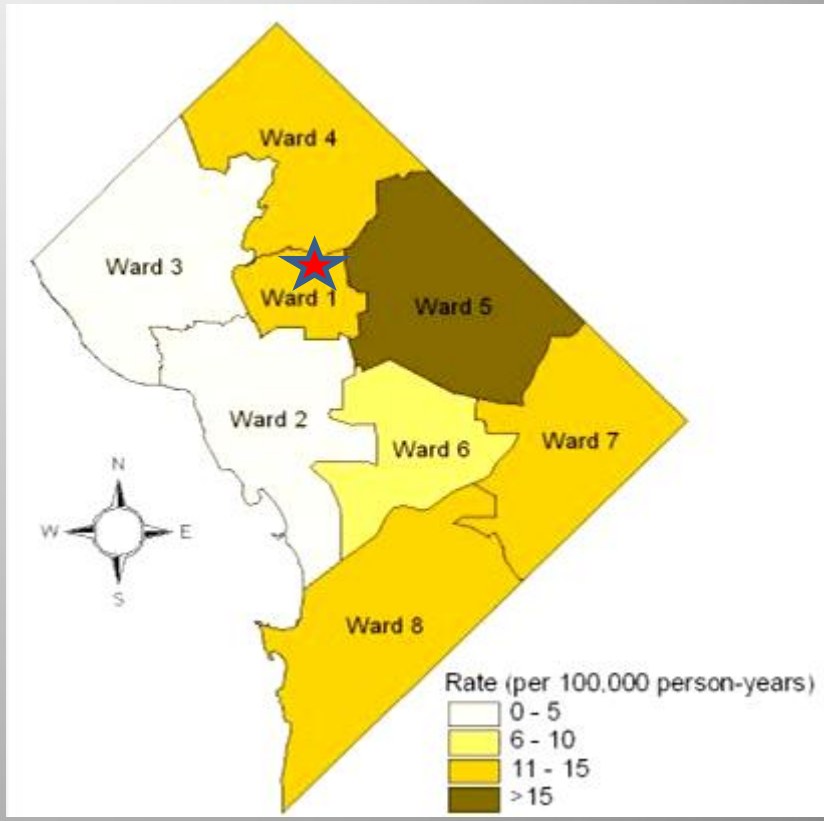
Registry	Age-adjusted	AA males	White males
DC	12.6	29.1	11.0
SEER-9	8.6	16.4	13.5
Detroit	9.9	21.7	14.5

2-Year Survival in AA Males (%)

Stage	DC	SEER-9	Detroit
Local	34	72	69.2
Regional	32	43	44.8
Distant	5	34	29.1

Unique Position for Howard University

- Howard University is located in the center of Washington DC.
- Howard Cancer Center and Hospital
- The College of Dentistry is the only dental school in DC area and accommodates more than 10,000 clinic visits per year and most of these patients are low-income African Americans and Hispanics.



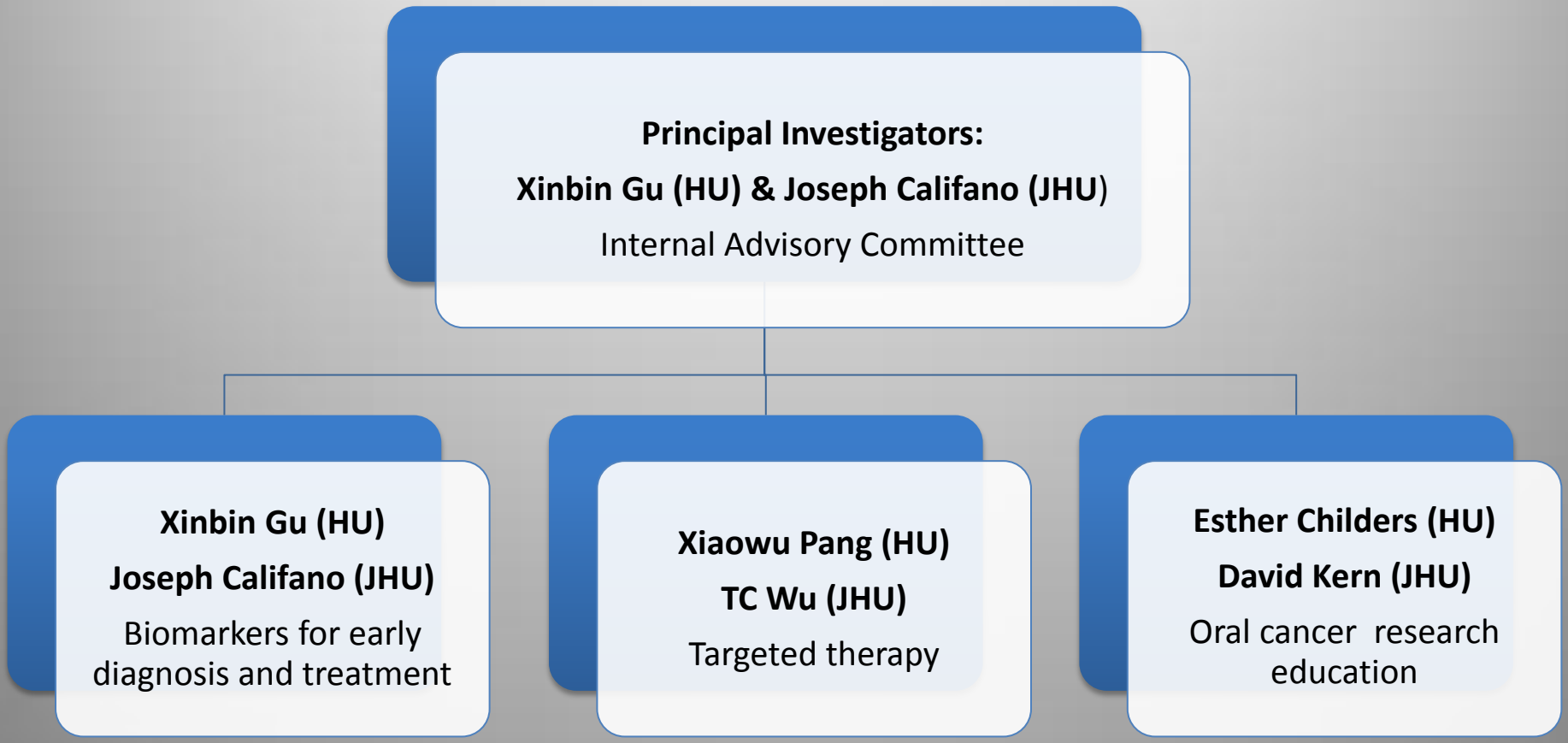
Initiating the Collaboration

- The initial collaboration was benefited from the NCI funded U54 Howard/Hopkins Cancer Center Partnership program.

- Together, Dr. Gu and Dr. Califano received a pilot project award in oral cancer research supported by the U54 program in 2004.

- **Gu X**, Song X, Dong Y, Pang X, Walters E, Cai H, Zhang R, Xie T, Guo Y, **Califano J**. "Vitamin E Succinate Induces Ceramide-mediated Apoptosis in Human Head and Neck Squamous Cell Carcinoma *in vitro* and *in vivo*". *Clin Cancer Res* 2008;15:1840-8.

Howard/Hopkins Partnership on Head and Neck Cancer Translational Research and Education Program



Publications (2008-2014)

- Total 18 peer-review papers including 15 co-authorship papers
- Examples:

Hao Y, Xie T, Korotcov A, Zhou Y, Pang X, Shan L, Ji H, Sridhar R, Wang P, **Califano J, Gu X**. "Salvianolic Acid B Inhibits Growth of Head and Neck Squamous Cell Carcinoma *in vitro* and *in vivo* via Cyclooxygenase-2 and Apoptotic Pathways" *Int J Cancer* 2009:124:2200-9. PMID: 19123475

Zhao Y, Hao Y, Ji H, Fang Y, Guo Y, Sha W, Zhou Y, Pang X, Southerland W, **Califano J, Gu X**. "Combinatorial Effect of Salvianolic Acid B and Celecoxib on Inhibition of Head and Neck Squamous Cell Carcinoma" *Cancer Prevention Res* 2010;3:787-96. PMID: 20501859

Wu CY, Monie A, **Pang X**, Hung CF, **Wu TC**. "Improving therapeutic HPV peptide-based vaccine potency by enhancing CD4+ T help and dendritic cell activation" *J Biomed Sci*. 2010;17(1):88. (PMID: 21092195)

Kang TH, Monie A, Wu LS**, Pang X**, Hung CF, **Wu TC**. "Enhancement of protein vaccine potency by in vivo electroporation mediated intramuscular injection". *Vaccine.* 2011 Jan 29;29(5):1082-9. Epub 2010 Dec 4. (PMID: 21130752).

Submission of Cancer-related Grant Applications from Howard University (2008-2014)

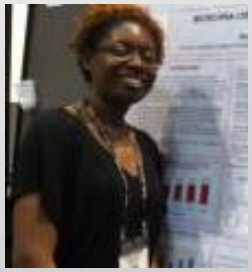
- Total 33 grant applications

R01: 3 R03: 2 R15: 3 R21: 3 R24: 2 R25: 2 R43: 1 P20: 2 F31: 1
Infrastructure: 1 Recovery Act: 1 DoD: 5 Instrument: 3 Others: 4

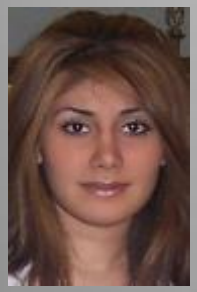
Date	Application ID	Proposal Title	Score
1/2008	1F31DE019606-01	Method Development for Early Diagnosis and Treatment monitoring of HNSCC	170
1/2009	CO6RR28610	Howard University College of Dentistry Infrastructure Project to Increase Its Research Capacity	53
7/2009	1R24MD005045-01 (MPI)	A Collaboration to Reduce Oral Cancer Disparity in DC Community	46
10/2011	CA110850 (DoD)	Colorectal Cancer-Secreted Chemoresistance-Associated microRNAs	1.8
2/2012	1R15DE023205-01	TUMOR AND INFLAMMATION-ASSOCIATED MICRORNAS IN ORAL CANCER	40
6/2012	1R24MD008029-01 (MPI)	A CBPR APPROACH TO REDUCE ORAL HEALTH DISPARITY IN THE DISTRICT OF COLUMBIA	40
6/2012	1R01MD007906-01 (MPI)	Detection, Imaging, and Treatment of Head and Neck Cancers using Novel Porphyrino	22

Research Training and Education:

- Over 50 trainees including high school, undergraduates, graduate and dental students, and postdoctoral fellows



- Oral cancer educational seminars for medical and dental students and local health professions.



Evaluation Strategies

- Ongoing evaluation and support:
  - Semi-annual IAC meeting for monitoring and quality assessment
  - Progress report from PIs of pilot projects
  - Formal scoring
- Annual evaluation:
  - Annual progress reports from each pilot project
  - Publications, professional presentations, and research grants
  - # students enrolled for research training
  - Outcome of education and training (pretest/posttest and survey)
- Overall evaluation:
  - The entire proposed partnership
  - Progress, assessment, and follow-up

Long-term Partnership

- Cancer research:
  - Translational research: HPV-associated oral cancer; targeted treatment
  - Clinical and community-based researches in oral cancer disparity

- Research training:
  - To increase minority biomedical researcher
  - 14 students have enrolled in this summer for research training

- New collaborators:
  - Dr. Jessica Yeh and Dr. Irene Ferguson at Hopkins
  - Dr. Indra Mustapha and Dr. Ernest Myers at Howard

- Seven manuscripts have been submitted for review

Hauser B, Zhao Y, **Pang X,** Myers E, **Califano J, Gu X.** "Multifunction of microRNA-128 in head and neck cancer"

Zhao Y, **Gu X,** Cai C, Ling Z, Hauser B, Sha W, **Califano J, Wu TC, Pang X.** "Exogenous microRNA-125b inhibits head and neck squamous cell carcinoma growth by modulating Bcl-2 pathways"

Overall Impact of P20 Program

Howard University

- Enhanced oral cancer research
- Impacted junior faculty career development
- Improved research capacity
- Increased minority faculty and students participate in research
- Built a long-term collaboration platform
- Experienced cutting-edge technology
- Conducted world-class research projects
- Produced high quality publications and grant applications

Johns Hopkins University

- Collaboration with HBCU institute and minority populations
- Approach cancer research from different angle

Success and Challenges to Sustain Current Activities and Long-term Partnership

- Be proactive in building solid partnership
- Innovative research and training projects
- Majority research activities conducted at Howard
- Keep promises to deliver value and benefits to your partners
- Continuing support from NCI and institutes
- Most challenge is limited research funding

- ***Win-Win Situation***

Many Thanks to

Partners at Howard and Hopkins

NCI Cancer Health Disparity Program