Proposal for the Establishment of a Board of Trustees Approved Center or Institute

Proposed name of Center or Institute:

___Center for Microbiomics, Inflammation and Pathogenicity (CMIP)_____

Physical Address/Location: ____Baxter I 221_____

University official to whom Center or Institute reports:

_____Dr.Toni Ganzel_____

Name(s) and title(s) of individual(s) submitting this proposal:

___Richard J Lamont, Professor and Chair_____

___Haribabu Bodduluri, Professor_____

Anticipated Date of Initiation of this Center or Institute:

_____July 1, 2021_____

Existing Center or Institute the proposed Center or Institute is intended to replace (if applicable):

_____N/A_____

Please respond to the following set of instructions, following the numbering scheme indicated. This report should also include a budget completed in the format provided with the instructions. See the Office of Academic Planning and Accountability website for more information. The entire proposal document should not exceed ten pages (excluding appended materials).

The final document should be reviewed by the Dean or Vice President responsible for providing oversight to the Center or Institute prior to submission. Confirmation of the dean or VP review can be included with the letter on financial commitments – see item 10 below or a separate letter can be submitted which is recommended if there are additional points that should be communicated.

Establishment Request Outline

1. A. Describe the purpose of the proposed Center or Institute.
   - Indicate why a separate organizational structure is needed to fulfill this purpose.
   - Include reference to the relationship of the Center or Institute to the mission of the university,
   - Indicate linkage to the mission of each college, school, unit, department or program of which the Center or Institute will be a part.
   - Include references to specific measurable goals to which the Center or Institute will contribute.

   B. Describe any activities or outcomes that are facilitated by the organizational structure of the Center or Institute. What goals could not be accomplished without the existence of the Center or Institute?

A. The purpose for the proposed Microbiomics, Inflammation and Pathogenicity (CMIP) is to facilitate advances in the study of the etiology, pathogenesis and treatment of microbiome-related diseases. An emerging common theme in many diseases, particularly those with an inflammatory component, is the involvement of a microbiome component in the inflammatory process. The microbiota coevolved with the host to help maintain health, and consequently a dysbiotic microbiota can lead to long-term changes in host responses that ultimately form the basis for many diseases. A dramatic illustration of this is provided by recent evidence showing that an overabundance of oral pathogens may contribute to Alzheimer's disease. The interconnectivity between the microbiome and the immune response is thus a fundamental component of a large variety human diseases in all age groups, and underscores the need for an integrated approach to studying the microbiome, inflammation and pathogenicity using cross-disciplinary approaches.

Currently there is an outstanding group of scientists conducting research into diverse aspects of microbiomics and infectious diseases scattered throughout multiple departments in the University. This configuration does not optimally utilize the significant intellectual resources extant at the University, or fully leverage equipment and resources. We have begun to address this issue with the creation of an NIH funded P20 Cobre on Functional Microbiomics, Inflammation and Pathogenicity. This is a junior faculty training grant which pairs unfunded early career stage faculty with more senior funded investigators, participating in projects revolving around the theme of microbially-induced inflammation and disease. In the 3 years the Cobre has been operational we have several successes: four junior faculty have received R01 funding, we have been awarded a supplement to study Alzheimer's Disease, and we have constructed a germ-free and gnotobiotic mouse facility. A major purpose of the proposed CMIP is to sustain and expand the progress made by the Cobre. As junior faculty receive funding and rotate off the Cobre, the CMIP will provide a structure for them to remain integrated with senior faculty and with other Cobre investigators and graduates. Importantly, we can continue to support them with Cobre core resources and with core facilities to be developed in the CMIP. This will help maintain productivity on their existing grants and generate preliminary data for new applications, both individual and Center-based. We will also be able to include investigators that are not part of the Cobre mentoring group which will allow partnerships among scientists committed to the investigation of diseases to flourish, and help ensure a pipeline of mentors and mentees. In turn, this will ensure long-term sustainability of the Cobre research focus beyond the NIH-funded period, which is a criterion for continued NIH funding. The collaborative and multi-disciplinary research that will be stimulated by the Center will increase the number of grant submissions and allow us to be more competitive for extramural research funding. A major metric of success of the Center, therefore, would be increases in the number of submitted and funded grant proposals in the associated departments. In particular, the Center will provide impetus for generating a thematic P01 Center grant on the microbiome. The establishment of such a Center would also enhance recruitment in areas related to Center activities, as faculty would be attracted by the opportunities and support provided by the Center. Ultimately, this will increase the research ranking of the University and individual Schools and departments, which is a major mission across HSC. The University would thus receive national and international recognition for this innovate enterprise. The Center will also be aligned with UoL Grand Challenges in the area of inflammatory diseases.

B. The organizational structure of the Center will facilitate: i) partnerships among scientists committed to the investigation of infectious and inflammatory diseases, thus ensuring long term sustainability of the Cobre research themes; ii) multi-disciplinary and collaborative research approaches; iii) information

exchange that will cross-fertilize and integrate different projects; iv) positioning to submit P01 grants, program projects and training grant applications (note Cobre researchers have already been successful with a T32 student training grant from NIH in the area of inflammatory disease) v) development of core equipment and facilities to support research; vi) private fund-raising; vii) translation of basic research to clinical diagnosis or treatment.

2. Name the unit and unit head that will provide oversight to the Center or Institute (not the director).

Dr. Toni Ganzel, VPAMA

3. a. Indicate who will direct the proposed Center or Institute and what other members of the administration and faculty will be involved in it. Indicate also the level of each individual's involvement on an annual FTE basis for the first three years of the Center's or Institute's operation. Attach a brief *curriculum vitae* for the person who will direct the Center or Institute and for the key faculty members who will be involved in it. Indicate how any current members of the faculty or administration who will be involved in the Center or Institute will be replaced in their present activities. Provide a statement from each key faculty member (5% time commitment or greater) indicating that his or her approved work plan includes time spent on Center or Institute activity.

Joint Directors:
Dr. Richard Lamont 5%
Dr. Haribabu Bodduluri 5%

Affiliated faculty (see 4 below for those that have made a commitment to join the Center. Others have research interests that fit with the Center theme and will be approached after a decision is made)

Egilmez
Zhang
Abu-Kwaik
Scott
Uriarte
Kosiewicz
Mitchell
Steinbach-Rankins
Bagaitkar
Potempa
Jala
Lawrenz
Sokoloski
Warawa
Collins

No replacement of current activities will be necessary as all are research intensive faculty. Both Dr. Lamont's and Dr. Bodduluri's work plans include time for these research-related activities.

b. Was the center/institute director appointed by the Board of Trustees (BOT)? (Yes or No) The guideline requiring BOT appointment is stated in The Redbook Section 3.3.5 A. http://louisville.edu/provost/redbook/contents.html/chap3.html#SEC3.3.5. *If the current director has not been appointed by the BOT, please contact Vice Provost for Faculty Affairs Office for assistance.*

Yes

Projected Financial Information – Write request narrative and complete C&I Budget Form

4. Indicate the anticipated amount and source of revenue for the Center or Institute in its first three years. Include a narrative that explains in detail all sources of revenue including center research incentive funds (C-RIF).

In the first 3 years, revenue will be from C-RIF. The following individuals have agreed to join the Center once it is established:
Juhi Bagaitkar (Cobre graduate), Oral Immunology and Infectious Diseases (OIID)
David A Scott (Cobre mentor), OIID
Silvia M. Uriarte (Cobre IAC member), OIID
Jan Potempa (Cobre mentor), OIID
Yousef Abu Kwaik (Cobre mentor), Microbiology and Immunology (M&I)

Along with the Center Directors, this group currently has 11 (eleven) R01s, 3 R21s, and 1 R13. With 6% C-RIF recovery to the Center, the budget would be around $80000 annually

We also propose to seek a sponsor for naming rights to the Center, and to endow a Chair in the Center which would be housed in either the OIID or M&I departments

5. Indicate the amount and source of funds that will be needed to operate the Center in its first three years. Include itemized amounts for personnel, equipment, technological support, and operating expenses.

The CID will have three major operational activities for at least the first three years. The first will be to facilitate investigator interface with the Cobre Core facilities (described below). This function will be supported by the Cobre. The second operational activity will be to develop an Imaging Core. The Center RIF funds and other targeted philanthropy funds will be used for purchase and service contracts for equipment, and technical support for users. Thirdly, we will provide seed money to develop the preliminary data necessary for a P01 Center application.

6. Indicate on an annual FTE basis the needs of the Center or Institute for P&A staff, classified staff, and other personnel in its first three years. Indicate how any current members of the university staff who will be involved in the Center or Institute will be replaced in their present activities. (Must match personnel information provided on the budget form accompanying this report).

In the first 3 years as the Cobre and CID will overlap, and as sustainability is a stated goal of the Cobre, administrative support will be provided by the Cobre personnel. A part-time (50% FTE) Research Technician for the Imaging core will be supported through the Center

7. Indicate the space requirements for the Center or Institute in its first three years, and how that space will be provided.

The Center will be housed in the Baxter I 2nd floor North Pod in the administrative offices of the OIID department. Laboratory and office space for all Center members will be provided by units in which Center members have their primary appointments.

The Functional Microbiomics Core (FMC) is currently located in the CTRB. The germ-free and gnotobiotic facilities are in newly renovated space (rooms 058, 059 and 060) of the CTR vivarium. The anaerobic culture facility and the Bioplex instruments are located in room 356 CTRB. All other activities, including sample collection, DNA isolations, Nanopore sequencing etc are performed in the laboratory area of 327A of CTRB. Imaging equipment will be housed in 327A of CTRB

8. Indicate initial equipment and other infrastructure resources (including technology) that the Center or Institute will need, and explain how these will be provided.

As part of the Cobre an integrated Functional Microbiomics Core (FMC) has been developed. As indicated above all the activities are coordinated through a single facility developed and directed by Dr. Bodduluri. The activities and services of the core are summarized in Fig.1

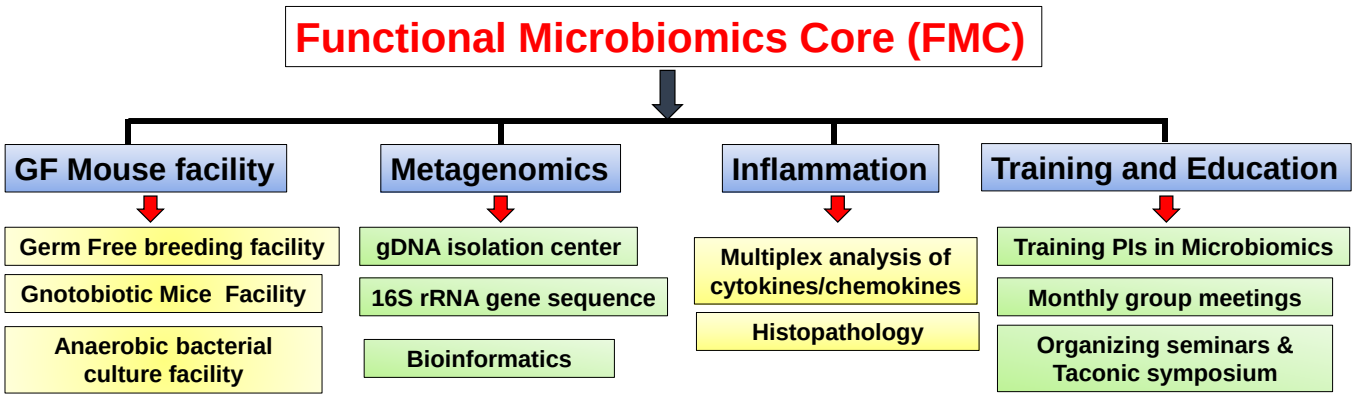

Fig 1: Organization and Services provided by the Functional Microbiomics Core

The central feature of the FMC is the germ-free and gnotobiotic facility that was supported by the non-recurring renovations project of the Cobre. This funding ($300,000) was used for modification of the existing facilities in the RRF and allowed us to fully equip three separate rooms that support over 200 cages of germ-free and gnotobiotic mice. We believe this provides an excellent baseline and any further growth and demand for more space will be supported by user fees. The facility currently has 4 semi-rigid (ParkBio) isolators, three Techniplast cage level isolator racks (each with 36 cage capacity) as well as eight flex film isolators (Clean Biological Systems; each with 12 cage capacity). This facility has been producing germ-free animals in house, maintaining gnotobiotic mice in the Techniplast cage wide isolators, and recently was successful in re-deriving specific knockout mice as germ-free. A separate anaerobic culture facility is available for recolonizing germ-free mice with defined bacterial strains. FMC also offers services for isolation of fecal DNA for 16S ribosomal DNA sequence and analysis of microbial diversity. FMC has established multiplex analysis of the cytokines and chemokines using a Bio-Rad Bioplex-200 instrument. Funding for these facilities comes mainly from the Cobre grant, Institutional

support for the Cobre as well as minimal user fees during the development stage. However, Center funds would be used to support non-Cobre investigator usage of the FMC

Development of an Imaging Core will be centered on an ONI Nanoimager. Center funds along with Cobre funds will be utilized to purchase this instrument. A long-term goal for the imaging core is to establish a two photon intravital imaging modality for real-time imaging of inflammation in live mice. To fund this initiative, we will apply for a NIH Instrumentation grants and also seek institutional support via philanthropy.

9. Provide a written statement from the Dean, University Libraries (or designee) concerning the adequacy of current resources. The statement should include a comparison of local holdings to standards/recommendations of national accrediting agencies, the holdings of benchmark institutions, and/or other recognized measures of adequacy. If additional resources are needed to support the program, the statement should include an estimate of costs and the sources of additional funding. The statement should be requested at least one month prior to submitting the final proposal to the Provost Office of Academic planning and Accountability.

Attached

10. Provide a written statement from the Dean, Vice President or department chairs verifying each financial commitment made in support of the program.

11. A. Indicate how the work of the Center or Institute will be evaluated. Please describe the Center or Institute's evaluation plan according to the following criteria:

    - the specific objectives or anticipated outcomes for the work of the Center or Institute;
    - the specific measures, assessment tools, and/or performance indicators that will be used to assess the fulfillment of the Center or Institute's objectives;
    - the schedule for collection, analysis, and reporting of evaluation data described in b. above;
    - the person, committee, or entity that will receive the evaluation data or reports and is responsible for developing and implementing changes and improvements.

The Center will be evaluated by workflow in the Core, number of non-Cobre investigators being supported, submission multi-disciplinary grant applications, and collaborative peer-reviewed publications. Other metrics include, invention disclosures, patent applications and the number of students, postdoctoral fellows and other personnel trained. Data will be collected annually by administrative personnel and reported to the Directors and to an Internal Advisory Committee (to be convened once the Center is established). The IAC will make any recommendations to the Directors for changes or improvements.

B. Indicate what type of annual reports will be submitted to Dean or Vice President providing oversight to the new Center or Institute.

Written annual reports describing information above.

University of Louisville

Centers and Institutes Budget Form

Center/Institute: Center for Inflammatory Diseases

Unit Home (i.e. A Dentistry

Amounts and Sources of Revenue

Fiscal Year	Current 2021-2022	Projected 2022-2023	Projected 2023-2024	Projected ??	Projected ??	Projected ??
1. Regular State Appropriation & Fees						
a. New Allocation						
b. Internal Reallocation						
2. Institutional Allocation from Restricted Endowment						
3. Institutional Allocation from Unrestricted Endowment						
4. Gifts						
5. Extraordinary State Appropriation						
6. Grants and Contracts						
7. Center RIF	80,000	80,000	80,000			
8. Capitation						
9. Capital						
10. Renovation						
11. Library Support						
12. Surplus Funds						
TOTAL REVENUES	**$80,000**	**$80,000**	**$80,000**	**$0**	**$0**	**$0**

Expenditures for the Center/Institute								
	Current	**Projected**	**Projected**	**Projected**	**Projected**	**Projected**
Fiscal Year	**2019-2020**	**2020-2021**	**2021-2022**	**??**	**??**	**??**
I. Personnel						
1.Full-time Faculty						
a. Full-time Faculty FTE						
b. Total Salaries						
c. Total Fringe Benefits Cost						
COST OF FTF : (b+c)	$0	$0	$0	$0	$0	$0
2. Part-time Faculty						
a. Part-time Facuty FTE						
b. Total Salaries						
COST OF PTF: (b)	$0	$0	$0	$0	$0	$0
3. Graduate Assistants (GA)						
a. Graduate Assistant FTE						
b. Total GA Stipends						
COST OF GA: (b)	$0	$0	$0	$0	$0	$0
4. Staff Support (SS) - Research Tech II						
a. Support Staff FTE	0.5	0.5	0.5			
b. Total Staff Salaries	$16,000	$16,000	$16,000			
c. Total Fringe Benefits Cost	$4,560	$4,560	$4,560			
COST OF SS: (b+c)	$20,560	$20,560	$20,560	$0	$0	$0
TOTAL PERSONNEL COST	**$20,560**	**$20,560**	**$20,560**	**$0**	**$0**	**$0**

II. Operating Cost								
1.Supplies, Including equipment Maintenance		20,000	20000	20000				
2. Travel								
3. Library								
a. one-time retrospective purchasing								
b. Book and journal acquisitions								
c. Computerized information system								
4. Student Support-Tuition Remission								
5. Equipment		$39,440	$39,440	$39,440				
6. Off-campus Facilities								
7. Accreditation								
8. Other (explain)								
TOTAL OPERATING COST		**$59,440**	**$59,440**	**$59,440**	**$0**	**$0**	**$0**	
III. Capital Cost								
1. Facilities								
a. New Construction								
b. Renovation								
c. Furnishings								
TOTAL CAPITAL COST		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	
TOTAL EXPENDITURES		**$80,000**	**$80,000**	**$80,000**	**$0**	**$0**	**$0**	

List all current employees paid from the center/institute budget (faculty, staff, graduate asst. or other temp. employees.)

1.Full-time Faculty (FTE)

Name	Full-time Equivalent (FTE)	Status Perm. or Temp.	Total Salary	Salary paid by the program/center/institute
Total				

2. Part-Time Faculty (PTE)

Name	Full-time Equivalent (FTE)	Status Perm. or Temp.	Total Salary	Salary paid by the program/center/institute
Total				

3. Graduate Assistants (GA)

Name	Full-time Equivalent (FTE)	Status Perm. or Temp.	Total Salary	Salary paid by the program/center/institute
Total				

4. Staff Support (SS)

Name	Full-time Equivalent (FTE)	Status Perm. or Temp.	3 YrTotal Salary and fringe	Salary paid by the program/center/institute
	50% Research Tech. II		$61,680	
Total				

Note: the total FTE and salary amounts should be equal to the personnel cost information (Current year) listed in the departmental expenditures.

Revised 8.12.19

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Lamont, Richard J

eRA COMMONS USER NAME : rlamont

POSITION TITLE: Endowed Professor and Chair

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
University of Edinburgh, Scotland	B.Sc.	1982	Bacteriology
University of Aberdeen, Scotland	Ph.D.	1985	Bacteriology
University of Pennsylvania, Philadelphia, PA	Post-Doc	1988	Microbiology

A. Personal Statement

I have a broad background in molecular and cellular microbiology and extensive experience investigating the molecular basis of interspecies interactions and host pathogen interactions. My work over the past two decades has defined multiple sets of adhesin-receptor pairs that mediate co-adhesion between *P. gingivalis* and *S. gordonii*. In addition, I have studied the interspecies signaling occurring subsequent to adhesion which directs community development and expression of virulence factors. My laboratory was the first to establish synergistic pathogenicity between *P. gingivalis* and *S. gordonii*, and identify a novel signaling pathway based on tyrosine (de)phosphorylation that controls the process. My studies have also addressed metabolites produced by *S. gordonii* which impact signaling and virulence in *P. gingivalis*. Moreover, my research on *P. gingivalis*-epithelial cell interactions was among the first to use primary gingival epithelial cells and to establish *P. gingivalis* invasion. I have identified invasion effectors of *P. gingivalis*, including a novel serine phosphatase, and have investigated a number of host cell signaling pathways that are impacted by bacterial challenge. My laboratory routinely uses global approaches, such as Tn-Seq and RNA-Seq, and performs imaging of heterotypic bacteria communities. I place a high value on collaborative endeavors which has led to the study of neutrophil interactions with oral bacteria including the emerging periodontal pathogens *Filifactor alocis* and *Peptoanaerobacter stomatis*. I am the PI of the P20 COBRE Center on Functional Microbiomics, Inflammation and Pathogenicity and am familiar with the management and operation of a complex multi-component research center.

B. Positions and Honors

Positions and Employment

1988-1993 Assistant Professor, Oral Biology and Microbiology, University of Washington
1993-1998 Associate Professor, Oral Biology and Microbiology, University of Washington
1998-2002 Professor, Oral Biology and Microbiology, University of Washington
2002-2010 Professor, Oral Biology, University of Florida
2010-present Delta Dental Endowed Professor and Chair, University of Louisville

Other Experience and Professional Membership

2000-2005 Associate Editor, *Microbiology*
2001-2004 Editorial Board, *Journal of Dental Research*
2005-2010 Editor, *Microbiology*
2008-2010 Editorial Board, *Oral Microbiology and Immunology*
2010-2014 Editor, *Molecular Oral Microbiology*

2012-2015 Associate Editor, *Frontiers in Cellular and Infection Microbiology*
2005-present Editorial Board, *Infection and Immunity*
2011-present Editor, *Microbes and Infection*
2015-present Editor in Chief, *Molecular Oral Microbiology*
2006-2009 Member NIDCR ODCS Study Section

Honors

1982 Milner Scholarship, University of Aberdeen
1991 NIH New Investigator Award
1995 IADR Distinguished Scientist: Young Investigator Award
2003 Fellow, Japanese Society for the Promotion of Science
2006 IADR Distinguished Scientist: Research in Oral Biology Award
2009 NIH MERIT Award
2011 Honorary Professor, Sichuan University, China
2016 University of Louisville President's Award for Research Excellence
2019 Honorary Professor, Henan University of Science and Technology, China

C. Contribution to Science

1. *P. gingivalis* assembles into polymicrobial communities with synergistic pathogenicity

Work from the Kolenbrander lab and others had shown that oral bacteria form interspecies networks of coaggregated organisms. Landmark studies by Slots and Gibbons in the 1970s demonstrated that initial colonization of plaque by *P. gingivalis* requires attachment to antecedent streptococcal colonizers, and close association of *P. gingivalis* with streptococci has been corroborated by more recent in vivo imaging studies. In collaboration with Dr. Demuth, we have defined *P. gingivalis-S. gordonii* interacting adhesins and their functional domains. Moreover, our group was among the pioneers of the field of polymicrobial synergy through investigation of communication and signaling among physiologically compatible organisms in communities. We have defined metabolite and contact dependent communication between *P. gingivalis* and *S. gordonii,* and uncovered a signal transduction network in *P. gingivalis* based on a cascade of protein tyrosine phosphorylation and dephosphorylation events. The importance of this interaction in vivo was demonstrated by our finding that communities of *P. gingivalis* and *S. gordonii* cause more alveolar bone loss in mice compared to infection with either species alone, and inhibition of coadhesion prevents community-mediated bone loss. Hence, this work has identified additional targets for potential therapeutic intervention to inhibit *P. gingivalis* colonization and the subsequent transition of the plaque biofilm to a pathogenic entity.

1. Kuboniwa M, Houser JR, Hendrickson EL, Wang Q, Alghamdi SA, Sakanaka A, Miller DP, Hutcherson JA, Wang T, Beck DAC, Whiteley M, Amano A, Wang H, Marcotte EM, Hackett M, Lamont RJ. 2017. Metabolic crosstalk regulates *Porphyromonas gingivalis* colonization and virulence during oral polymicrobial infection. Nat Microbiol. 2: 1493-1499. PMC5678995
2. Hendrickson EL, Beck DA, Miller DP, Wang Q, Whiteley M, Lamont RJ. 2017. Insights into dynamic polymicrobial synergy revealed by time-coursed RNA-Seq. Front Microbiol 8:261. PMC5329018
3. Wright CJ, Xue P, Hirano T, Liu C, Whitmore SE, Hackett M, Lamont RJ. 2014. Characterization of a bacterial tyrosine kinase in *Porphyromonas gingivalis* involved in polymicrobial synergy. MicrobiologyOpen 3:383-394. PMC4082711
4. Maeda K, Tribble GT, Tucker CM, Anaya C, Shizukuishi S, Lewis JP, Demuth DR, Lamont RJ. 2008. A *Porphyromonas gingivalis* tyrosine phosphatase is a multifunctional regulator of virulence attributes. Mol Microbiol 69:1153-1164. PMC2537464

2. Molecular and cellular dialog between *Porphyromonas gingivalis* and gingival epithelial cells (GECs).

In the latter decades of the 20th century the scientific community began to appreciate that epithelial cells are not simply a passive barrier to microbial intrusion, but rather constitute an interactive interface that can sense the presence of bacteria and signal their presence to underlying immune cells. Colonizing bacteria, for their part, can subvert host cell signaling systems to direct their uptake into the otherwise non-professionally phagocytic epithelial cells, and to manipulate host cell physiology. My group was among the first to show that *P. gingivalis* actively invades epithelial cells, which we established in a novel model system utilizing primary cultures of GECs. Dissection of the molecular and cellular dialog between *P. gingivalis* and GECs then became a major research focus. We have found that internalization of *P. gingivalis* is effectuated by a limited number of functionally versatile invasins, including the FimA fimbriae and the serine phosphatase SerB, which impact cytoskeletal integrity and thus allow bacteria entry. Cohabiting bacteria and GECs remain viable and adaptation of both cell types involves major changes in the transcriptome and expressed proteome. Phenotypic consequences for the host cell include disruption of cytokine signaling (see 3. below) along with suppression of apoptotic cell death pathways, acceleration through the cell cycle, and initiation of the epithelial-mesenchymal transition. Collectively, this work defined a new aspect of the *P. gingivalis*-host interaction with relevance for homeostatic imbalance, long term *P. gingivalis* survival in the host, and recrudescence of infection.

1. Ohshima J, Wang Q, Fitzsimonds ZR, Miller DP, Sztukowska MN, Jung YJ, Hayashi M, Whiteley M, Lamont RJ. 2019. *Streptococcus gordonii* programs epithelial cells to resist ZEB2 induction by *Porphyromonas gingivalis*. Proc Natl Acad Sci U S A 116:8535-8543.
2. Sztukowska MN, Ojo A, Ahmed S, Carenbauer AL, Wang Q, Shumway B, Jenkinson HF, Wang H, Darling DS, Lamont RJ. 2016. *Porphyromonas gingivalis* initiates a mesenchymal-like transition through ZEB1 in gingival epithelial cells. Cell Microbiol 18:844-858. PMC5135094
3. Wang Q, Sztukowska M, Ojo A, Scott DA, Lamont RJ, Wang H. 2015. FOXO responses to *Porphyromonas gingivalis* in epithelial cells. Cell Microbiol 17:1605-1617. PMC4624012
4. Tribble GD, Mao S, James CE, Lamont RJ. 2006. A *Porphyromonas gingivalis* haloacid dehalogenase family phosphatase interacts with human phosphoproteins and is important for invasion. Proc Natl Acad Sci USA 103:11027-11032. PMC1544168

3. Local chemokine paralysis induced by *P. gingivalis*.

P. gingivalis exhibits a 'dual personality' in terms of host innate immunity, inducing both pro- and anti-inflammatory responses in a context dependent manner. One major anti-inflammatory property is suppression of the neutrophil and T-cell chemokines in GECs even in the presence of otherwise stimulatory bacteria. We discovered this phenomenon in collaboration with Dr. Darveau's group and coined the phrase 'local chemokine paralysis'. Subsequently my group discovered the molecular mechanism for antagonism of IL-8 production by GECs. The SerB serine phosphatase is secreted within epithelial cells by *P. gingivalis* and specifically dephosphorylates the P65 subunits of the transcription factor NF-κB. This prevents nuclear translocation of NF-κB P65 homodimers and thus reduces expression of the IL8 gene. Local chemokine paralysis induced by *P. gingivalis* SerB, even if transient, could have a significant impact on immune status in the gingival crevice where microbial stimulation is constant and neutrophils are necessary to constrain the microbial challenge. Indeed, we found that oral infection of mice with a SerB mutant of *P. gingivalis* resulted in less bone loss and more neutrophil recruitment in the periodontal tissues compared to infection with the parental strain.

1. Takeuchi H, Hirano T, Whitmore SE, Morisakai I, Amano A, Lamont RJ. 2013. The serine phosphatase SerB of *Porphyromonas gingivalis* suppresses IL-8 production by dephosphorylation of NF-κB RelA/p65. PLoS Pathog 9:e1003326. PMC3630210
2. Jauregui CE, Wang Q, Wright CJ, Takeuchi H, Uriarte SM, Lamont RJ. 2013. Suppression of T-cell chemokines by *Porphyromonas gingivalis*. Infect Immun 81:2288-2295. PMC3697598
3. Bainbridge B, Verma RK, Eastman C, Yehia B, Rivera M, Moffatt C, Bhattacharyya I, Lamont RJ, Kesavalu L. 2010. Role of *Porphyromonas gingivalis* phosphoserine phosphatase enzyme SerB in inflammation, immune response, and induction of alveolar bone resorption in rats. Infect Immun 78:4560-4569. PMC2976320
4. Darveau R, Belton CM, Reife R, Lamont RJ. 1998. Local chemokine paralysis: a novel mechanism of bacterial persistence. Infect Immun 66:1660-1665. PMC108102

4. Establishing the pathogenic credentials of *Filifactor alocis.*

The oral microbiome project has identified a number of as yet uncultivable, and difficult to culture, organisms with as strong an association with periodontal disease as the 'classical' pathogens such as *P. gingivalis*. The challenge now is to determine whether such organisms are active pathogens or more passively associated with the inflammatory environment of periodontal lesions. We have focused our attention on the Gram-positive organism *F. alocis* which is present in high numbers in periodontitis, and we are investigating its interactions with other periodontal bacteria, epithelial cells and neutrophils, along with its pathogenic properties in animal models.

1. Edmisson JS, Tian S, Armstrong CL, Vashishta A, Klaes CK, Miralda I, Jimenez-Flores E, Le J, Wang Q, Lamont RJ, Uriarte SM. 2018. *Filifactor alocis* modulates human neutrophil antimicrobial functional responses. Cell Microbiol 20:e12829. PMC5980721
2. Armstrong CL, Miralda I, Neff AC, Tian S, Vashishta A, Perez L, Le J, Lamont RJ, Uriarte SM. 2016. *Filifactor alocis* promotes neutrophil degranulation and chemotactic activity. Infect Immun 84:3423-3433. PMC5116720
3. Wang Q, Jotwani R, Le J, Krauss JL, Potempa J, Coventry SC, Uriarte SM, Lamont RJ. 2014. *Filifactor alocis* infection and inflammatory responses in the mouse subcutaneous chamber model. Infect Immun 82:1205-1212. PMC3957978
4. Wang Q, Wright CJ, Dingming H, Uriarte SM, Lamont RJ. 2013. Oral community interactions of *Filifactor alocis* in vitro. PLoS One e76271. PMC3789735

5. Formulating a new model of periodontal disease pathogenesis

To draw all the above concepts together and contextualize with our collaborator Dr. Hajishengallis' conceptual advances, we have proposed a theory of periodontal disease pathogenesis based on polymicrobial synergy and dysbiosis (PSD). The PSD model holds that periodontal disease ensues from the action of a polymicrobial community in which pathogenicity is defined by interactions among functionally specialized organisms including keystone pathogens and accessory pathogens. Pathogenic communities then induce dysbiotic host responses which fail to control the microbial challenge and contribute to tissue destruction. The original paper describing the PSD model has been cited over 250 times since 2012. We are currently pursuing testable predictions based on this model which we believe will significantly advance the field.

1. Lamont RJ, Koo H, Hajishengallis G, 2018. The oral microbiota: dynamic communities and host interaction. Nature Rev Microbiol 16:745-759. PMC6278837
2. Hajishengallis G, Lamont RJ. 2016. Dancing with the stars: How choreographed bacterial interactions dictate nososymbiocity and give rise to keystone pathogens, accessory pathogens, and pathobionts. Trends Microbiol 24:477-489. PMC4874887
3. Lamont RJ, Hajishengallis G. 2015. Polymicrobial synergy and dysbiosis in inflammatory disease. Trends Mol Med 21: 172-183. PMC4352384
4. Hajishengallis G, Lamont RJ. 2014. Breaking bad: manipulation of the host response by *Porphyromonas gingivalis.* Eur J Immunol 44:328-338. PMC3925422

Complete List of Published Work in MyBibliography
http://www.ncbi.nlm.nih.gov/sites/myncbi/richard.lamont.1/bibliography/40472917/public/?sort=date&direction=ascending

D. Research Support

<u>Ongoing Research Support</u>

R01 DE012505 Lamont (PI) 05/01/2018 - 04/30/2023
Molecular Aspects of Oral Plaque Formation

The objectives of this project are to analyze the fine structure of an adhesin domain of the streptococcal SspB adhesin, to characterize the *P. gingivalis* receptor for SspB, to identify the *S. gordonii* receptor for *P. gingivalis* fimbriae and investigate *P. gingivalis* genes differentially regulated by SspB.
Role: PI

R37-R01 DE011111 Lamont (PI) 01/01/2009 – 12/31/2024
P. gingivalis Interactions with Gingival Epithelial Cells
The objectives of this proposal are to characterize the invasion mechanisms of *P. gingivalis*, to identify the invasion associated genes and to elucidate the molecular signaling that occurs between bacteria and host cells.
Role: PI

R01 DE017921 Lamont (PI) 01/01/2015 – 12/31/2021
Role of JAKs in Innate Responses to *P. gingivalis*
The objectives of this project are to define the role of the JAK kinases in controlling inflammation induced by *P. gingivalis* in innate immune cells
Role: PI

R01 DE023193 Lamont, Whiteley (Joint PIs) 06/01/2013 – 05/31/2024
Probing Polymicrobial Synergy using High Throughput Genomics
The objectives of this study are to perform RNASeq and TnSeq on communities of oral bacteria
Role: Joint PI

P20 GM125504 Lamont (PI) 03/01/2018 -02/28-2023
Functional Microbiomics, Inflammation and Pathogenicity
The is a COBRE training grant for junior faculty
Role PI

R01 DE022597 Potempa (PI) 02/01/2019 – 01/31/2023
Bacterial Peptidylarginine Deiminase: a link between Gum and Joint Disease
The objectives of this proposal are to study the biochemical properties of different form of peptidylarginine deiminase and assess their contribution to the virulence mechanisms of the *P. gingivalis*
Role: Investigator

R01 DE024509 Uriarte (PI) 09/01/2019 – 08/31/2024
Filifactor alocis interactions with neutrophils
The objectives of this study are to characterize the mechanisms by which *F. alocis* resists neutrophil killing
Role: Investigator

T32 AI132146 Shirwan and Lamont (Joint-PI) 08/01/2018 – 07/31/2023
Training program in Inflammation and Pathogenesis
Role Joint PI

Completed Research Support

R21 DE027201 Vickerman (PI) 07/01/2017 – 06/30/2019
Fitness Profiling of *Streptococcus gordonii*
Role: Co-PI

R01 DE16690 Lamont and Jenkinson (Joint-PI) 01/01/2012 – 12/31/2017
Candida-Bacteria Communication in Oral Biofilms
The objective of this study is to define the adhesins mediating binding between *P. gingivalis* and *C. albicans*
Role: Joint PI

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.

Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: BODDULURI, HARIBABU*

eRA COMMONS USER NAME (agency login): H0bodd01

POSITION TITLE: Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Andhra University, Waltair, AP	BS	06/1976	Biology and Chemistry
Andhra University, Waltair, AP	MS	06/1978	Biochemistry
Indian Institute of Science, Bangalore, Karnataka	PHD	01/1984	Biochemistry
The Johns Hopkins University, Baltimore, MD	Postdoctoral Fellow	07/1987	Biology

*** An old practice of writing the family name first in publications was continued to keep it consistent**

A. Personal Statement

I am a Professor and Vice Chairman of the Department of Microbiology and Immunology and also a Scientist at the James Graham Brown Cancer Center. Research in my laboratory is focused on understanding how leukotriene B_4 and its receptors BLT1 and BLT2 regulate inflammation. For these studies, we generated multiple KO mice and have recently rederived and maintained germ-free $BLT1^{-/-}$ mice. These studies have led us to define the key role of LTB_4 in initiating a self-perpetuating innate immune response that resolves once the underlying cause of inflammation is neutralized. I have over twenty-five years of experience in inflammation and cancer research, during which my work has been consistently supported by NIH and other funding agencies. I have been interested in directed cell migration all my scientific carrier and made significant contributions in various aspects related to chemoattractant biology as outlined in the section C. For the past fifteen years as head of the tumor immunobiology program at the James Graham Brown Cancer Center (JGBCC), I have been involved in faculty recruitment, and in the development of scientific programs and shared use facilities. I am also the director of the ***Functional Microbiomics Core*** (**FMC**), a facility supported by a COBRE grant to house germ-free and gnotobiotic mice as well characterize microbiota through 16-S rDNA sequence analysis. This facility also provides the service for multiplex analysis of cytokines and chemokines using the Bioplex-200 instrument. I am also serving as Co-director of the ***Functional Immunomics Core*** facility for the Center for Cancer Immunology and Immunotherapy COBRE.

Current research in my laboratory is focused on the role of BLT1 in sterile inflammation and silicosis. We have recently defined a cytoplasmic “lipidosome” that is the site of LTB_4 synthesis. Our data also showed that LTB_4/BLT1 axis is critical for neutrophil recruitment in silicosis. We are also examining the role of Microbiota in Alzheimer’s disease using germ-free mouse models.

1. Satpathy SR, Jala VR, Bodduluri SR, Krishnan E, Hegde B, Hoyle GW, Fraig M, Luster AD, **Haribabu B**. Crystalline silica-induced leukotriene B4-dependent inflammation promotes lung tumour growth. ***Nat Commun.*** 2015 Apr 29;6:7064. PubMed PMID: 25923988; PubMed Central PMCID: PMC4418220.
2. Hegde B, Bodduluri SR, Satpathy SR, Alghsham RS, Jala VR, Uriarte SM, Chung DH, Lawrenz MB, **Haribabu B**. Inflammasome-Independent Leukotriene B_4 Production Drives Crystalline Silica-Induced Sterile Inflammation. ***J Immunol***. 2018 15;200(10):3556-3567. doi: 10.4049/jimmunol.1701504. PMID: 29610142
3. Bodduluri SR, Mathis S, Maturu P, Krishnan E, Satpathy SR, Chilton PM, Mitchell T, Lira SA, Locati M, Mantovani A, Jala VR*, **Haribabu B***. Mast cell dependent $CD8^+$ T cell recruitment mediates immune surveillance of intestinal tumors in $Apc^{Min/+}$ mice. ***Cancer Immunology Research***. 2018. doi: 10.1158/2326-6066.cir-17-0424.

4. Alghsham RS, Satpathy SR, Bodduluri SR, Hegde B, Jala VR, Twal W, Burlison JA, Sunkara M, and **Haribabu B.** Zinc Oxide Nanowires Exposure Induces a Distinct Inflammatory Response via CCL11-Mediated Eosinophil Recruitment. ***Frontiers in Immunology*** 10 (2019). 08 November 2019 | https://doi.org/10.3389/fimmu.2019.02604

B. Positions and Honors

Positions and Employment

1987 - 2002	Research Associate, Hunter College, City University of New York, New York, NV
1992 - 2000	Assistant Professor, Duke University Medical Center, Durham, NC
2001 - 2002	Associate Professor, Department of Pathology, University of Louisville, Louisville, KY
2002 - 2006	Associate Professor, Department of Microbiology and Immunology, University of Louisville, Louisville, KY
2004 -	Program Leader, Tumor Immunobiology, The James Graham Brown Cancer Center, University of Louisville, Louisville, KY
2006 -	Professor, Department of Microbiology and Immunology, Louisville, KY
2006 - 2015	Professor, Department of Pharmacology and Toxicology, Louisville, KY

Other Experience and Professional Memberships

2011 -	Member, American Association of Immunologists

Honors

1976	State Merit Scholarship, Andhra University
1978	University First Rank, MS, Andhra University
2006	Editor, Transmembrane Signaling Protocols 2nd edition "Methods in Molecular Biology Series"
2010	Scientist of the Year, Julep Ball of the Kentucky Derby
2017	Guest editor; special Issue on “Leukotriene B_4 Receptors and Inflammation” for “*Seminars in Immunology*”

Grant Review panels:

2004-05 NIH/NIAID Program Project (Arthritis P01) Review Panel
2005, 2006, 2007 Phillip Morris External Grants Review Panel
2007 Arthritis Foundation Research Grant Review Panel
2007 American Association for Cancer Research, Immunology Program Review Panel
2007, NIH U19-Asthma program
2009 Special Emphasis Panel ZRG1 DKUSA
2011 NIH U19-Asthma program - March 2011
2012 NIH Special Emphasis Panel- March 2012 ZCA1SRLB-D (K1)
2012 NIH Special Emphasis Panel- December 2012 ZCA1 RTRB-8
2013 NIH review panel III Study section ad hoc member November 2013
2015 NIH Special Emphasis panel-February 2015 ZCA1 SRB-2(M2)
2017 NIH review panel III Study section ad hoc member June 2017
2018 NIH Special Emphasis panel ZRG DKUS-N (04) June 2018
2019 NIH review panel III Study section ad hoc member June 2019
2019 NIH review panel III Study section ad hoc member Oct 2019

C. Contribution to Science

1. Early in my scientific carrier, I developed an interest in understanding the basis for directed cell migration and chose to work on *Dictyostelium discoideum* for my postdoctoral research. In these studies, I demonstrated that cAMP works as a hormone and not as a second messenger in regulating gene expression by binding to a cell surface receptor. This work has led to subsequent identification of several protein kinases that regulate signal transduction pathways in slime molds as well as in human leukocytes.

a. **Haribabu B**, Dottin RP. Pharmacological characterization of cyclic AMP receptors mediating gene regulation in Dictyostelium discoideum. ***Mol Cell Biol.*** 1986 Jul;6(7):2402-8. PubMed PMID: 3023932; PubMed Central PMCID: PMC367793.

b. **Haribabu B**, Dottin RP. Identification of a protein kinase multigene family of Dictyostelium discoideum: molecular cloning and expression of a cDNA encoding a developmentally regulated protein kinase. ***Proc Natl Acad Sci U S A.*** 1991 Feb 15;88(4):1115-9. PubMed PMID: 1996312; PubMed Central PMCID: PMC50967.

c. **Haribabu B**, Snyderman R. Identification of additional members of human G-protein-coupled receptor kinase multigene family. ***Proc Natl Acad Sci U S A.*** 1993 Oct 15;90(20):9398-402. PubMed PMID: 8415712; PubMed Central PMCID: PMC47575.

d. **Haribabu B**, Hook SS, Selbert MA, Goldstein EG, Tomhave ED, Edelman AM, Snyderman R, Means AR. Human calcium-calmodulin dependent protein kinase I: cDNA cloning, domain structure and activation by phosphorylation at threonine-177 by calcium-calmodulin dependent protein kinase I kinase. ***EMBO J.*** 1995 Aug 1;14(15):3679-86. PubMed PMID: 7641687; PubMed Central PMCID: PMC394442.

2. Our work on chemokine receptor signaling led to several important findings including the identification that a truncation mutant of the HIV coreceptor CXCR4 leads to hyper activation of the receptor. This work provided the basis for explaining the naturally occurring mutation in WHIM syndrome. Our work also led to the identification of novel ligand-independent β-arrestin dependent constitutive internalization of chemokine decoy receptor ACKR2, at that time known as D6.

a. **Haribabu B**, Richardson RM, Fisher I, Sozzani S, Peiper SC, Horuk R, Ali H, Snyderman R. Regulation of human chemokine receptors CXCR4. Role of phosphorylation in desensitization and internalization. ***J Biol Chem.*** 1997 Nov 7;272(45):28726-31. PubMed PMID: 9353342.

b. **Haribabu B**, Zhelev DV, Pridgen BC, Richardson RM, Ali H, Snyderman R. Chemoattractant receptors activate distinct pathways for chemotaxis and secretion. Role of G-protein usage. ***J Biol Chem.*** 1999 Dec 24;274(52):37087-92. PubMed PMID: 10601267.

c. Galliera E, Jala VR, Trent JO, Bonecchi R, Signorelli P, Lefkowitz RJ, Mantovani A, Locati M, **Haribabu B.** beta-Arrestin-dependent constitutive internalization of the human chemokine decoy receptor D6. ***J Biol Chem.*** 2004 Jun 11;279(24):25590-7. PubMed PMID: 15084596.

d. Jala VR, Shao WH, **Haribabu B**. Phosphorylation-independent beta-arrestin translocation and internalization of leukotriene B4 receptors. ***J Biol Chem***. 2005 Feb 11;280(6):4880-7. PubMed PMID: 15561704.

3. Our work on Leukotriene B_4 receptors over the last twenty years resulted in several key findings leading to the recognition of the important role this receptor plays in variety of inflammatory diseases including atherosclerosis, asthma, arthritis and inflammation promoted cancers. We believe, a better understanding of these pathways will lead to better targeted therapeutics.

a. **Haribabu B**, Verghese MW, Steeber DA, Sellars DD, Bock CB, Snyderman R. Targeted disruption of the leukotriene B(4) receptor in mice reveals its role in inflammation and platelet-activating factor-induced anaphylaxis. ***J Exp Med.*** 2000 Aug 7;192(3):433-8. PubMed PMID: 10934231; PubMed Central PMCID: PMC2193219.

b. Del Prete A, Shao WH, Mitola S, Santoro G, Sozzani S, **Haribabu B**. Regulation of dendritic cell migration and adaptive immune response by leukotriene B4 receptors: a role for LTB4 in up-regulation of CCR7 expression and function. ***Blood.*** 2007 Jan 15;109(2):626-31. PubMed PMID: 16985179; PubMed Central PMCID: PMC1785104.

c. Chheda ZS, Sharma RK, Jala VR, Luster AD, **Haribabu B**. Chemoattractant Receptors BLT1 and CXCR3 Regulate Antitumor Immunity by Facilitating $CD8^+$ T Cell Migration into Tumors. ***J Immunol***. 2016 Jul 27. pii: 1502376. [Epub ahead of print] PMID: 27465528

d. Satpathy SR, Jala VR, Bodduluri SR, Krishnan E, Hegde B, Hoyle GW, Fraig M, Luster AD, **Haribabu B**. Crystalline silica-induced leukotriene B4-dependent inflammation promotes lung tumour growth. ***Nat Commun.*** 2015 Apr 29;6:7064. PubMed PMID: 25923988; PubMed Central PMCID: PMC4418220.

4. An important area recently developed in our laboratory is the analysis of microbiota and relevance to the human disease. We showed that gut microbiota controls the development of colon cancer progression and have identified ethnicity based diversity in human gut microbiota. We also developed methods for analyzing nasal, lung, oral microbiota.
    a. Hester CM, Jala VR, Langille MG, Umar S, Greiner KA, **Haribabu B**. Fecal microbes, short chain fatty acids, and colorectal cancer across racial/ethnic groups. ***World J Gastroenterol***. 2015;21(9):2759-69. doi: 10.3748/wjg.v21.i9.2759. PubMed PMID: 25759547; PMCID: PMC4351229.
    b. Mell B, Jala VR, Mathew AV, Byun J, Waghulde H, Zhang Y, **Haribabu B**, Vijay-Kumar M, Pennathur S, Joe B. Evidence for a link between gut microbiota and hypertension in the Dahl rat. ***Physiol Genomics***. 2015;47(6):187-97. doi: 10.1152/physiolgenomics.00136.2014. PubMed PMID: 25829393; PMCID: PMC4451389.
    c. Jala VR**,** Maturu P, Bodduluri SR, Krishnan E, Mathis S, Subbabrao K, Wang M, Jenson AB, Protocor ML, Rouchka EC, Knight R and **Haribabu B** Leukotriene B4-receptor-1 mediated host response shapes gut microbiota and controls colon tumor progression (2017) ***Oncoimmunology.*** 2017 2017 Aug 10;6(12):e1361593. doi: 10.1080/2162402X.2017.1361593. eCollection 2017. PMID:29209564
    d. Singh R, Chandrashekharappa S, Bodduluri S, Baby B, Hegde B, Kotla N, Hiwale A, Saiyed T, Patel P, Vijay-Kumar M, Langille G, Douglas G, Cheng X, Rouchka R, Waigel S, Dryden G, Alatassi H, Zhang HG, **Haribabu B**, Vemula P, Jala VR Enhancement of Gut Barrier Integrity by a Microbial Metabolite through Nrf2 Pathway, ***Nat Commun***. 2019;10(1):89. doi: 10.1038/s41467-018-07859-7. PubMed PMID: 30626868.

Complete List of Published Work in My Bibliography:

http://www.ncbi.nlm.nih.gov/sites/myncbi/185G0U1XpN4kr/bibliography/48029200/public/?sort=date&direction=ascending.

D. Research Support

Ongoing Research Support

Title of the Project: Innate immune mechanisms regulating silicosis
Source: NIH/NIAID
Type of Grant: 1R21AI130756-01A1
Role on Project: Principal Investigator
Dates of the Project: 6/1/2017 to 5/30/2021 (current year NCE)

The goal of the project is to determine molecular and cellular mechanism of silicosis and define the role of leukotrienes and inflammasome in the pathogenesis of silicosis.

Title of the Project: Functional Microbiomics, Inflammation and Pathogenicity (PI: Richard Lamont)
Subproject title: Functional Microbiomics Core (Core Director)
Source: NIH/NIGMS
Type of Grant: P20-GM125504-01
Role on Project: Principal Investigator
Dates of the Project: 03/1/2018 to 2/28/2023

The goal of this project is to provide integrated services to COBRE investigators to study microbiota in inflammation and pathogenicity by establishing a germ free, gnotobiotic mice as well as metagenomics core facility at UofL.

Title of the Project: Functional Microbiomics, Inflammation and Pathogenicity (PI: Richard Lamont)
Subproject title: Administrative supplement to Functional Microbiomics Core (Core Director)
Source: NIH/NIGMS
Type of Grant: P20-GM125504-3S1
Role on Project: Principal Investigator
Dates of the Project: 06/1/2020 to 5/31/2021

The goal of this Administrative supplement is to establish germ-free mouse models to promote research in Alzheimer's disease at the UofL.

Title of the Project: Center for Cancer Immunology and Immunotherapy (CCII) (PIs: Jun Yan and Jason Chesney)
Subproject title: Functional Immunomics Core
Source: NIH/NIGMS
Type of Grant: 1P20GM135004-01
Role on Project: Co-Director
Dates of the Project: 02/1/2020 to 1/31/2025

The goal of this project is to provide integrated services to CCII-COBRE investigators for conducting studies by establishing a Immunotherapy sample collection and analysis core facility at UofL.

Title of the Project: Functional Microbiomics, Inflammation and Pathogenicity (PI: Richard Lamont)
Subproject title: Novel synthetic analogue of microbial metabolite, Urolithin A, mitigates inflammatory bowel diseases.
Source: NIH/NIGMS
Type of Grant: P20-GM125504-01
Role on Project: Mentor for Project-1 (PI-Jala)
Dates of the Project: 03/1/2018 to 2/28/2023

The goal of this project is to examine the mechanism of actions, how Urolithin A synthetic analogue (UAS03) reduce inflammation and gut epithelial barrier dysfunction. We proposed to examine therapeutic applications to mitigate inflammatory bowel diseases as well as identify the bacteria responsible for UroA production.

Title of the Project: The role of bioactive lipids in CMC-induced myocardial repair
Source: NIH/NHLBI
Type of Grant: 1R01HL141191-01A1
Role on Project: Co Investigator (PI-Wysoczynski, Marcin)
Dates of the Project: 4/1/2019 to 3/31/2024

The goal of this project is to examine the role of leukotriene B4 receptors BLT1 and BLT2 in CMC-induced myocardial repair.

Title of the Project: Interplay of androgens, microbiota and immunoregulation in lupus.
Source: NIH/
Type of Grant: R01AR067188
Role on Project: CoI (PI: Michele M. Kosiewicz)
Dates of the Project: 9/1/2015 to 8/30/2021

The major goals of this project are to determine the role that androgens play in altering male microbiota and the mechanisms underlying male microbiota-mediated prevention of lupus in female mice.

Completed Support

Title of the Project: Role of Leukotriene B_4 Receptors in the Interplay of Inflammation and Infection
Source: NIH/NCI/
Type of Grant: 1R01CA138623
Role on Project: Principal Investigator
Dates of the Project: 4/01/2009-1/31/2016

The goal of this study is to determine the mechanisms of increased colon cancer development in leukotriene B4 receptor deficient mice in $APC^{Min/+}$ model of colon cancer.

November 22, 2019

To Whom It May Concern,

The Kornhauser Health Sciences Library (KSHL) is committed to providing resources that support the four residency programs of the University of Louisville School of Dentistry. In compliance with the Commission on Dental Accreditation (CODA) standards, KSHL holdings include or provide access to a diversified collection of current dental and medical literature and references necessary to support teaching, student learning needs, service, research and development. Should anyone desire to periodically review, acquire and select current titles and instructional aids we are happy to assist in any way we can.

The library print collection boasts 233,472 volumes with over 1,267 titles specific to dentistry. This includes 161 eBooks titles from ***STAT!Ref for Dentistry*** and ***ClinicalKey*** augment the dental print book collection. There are 313 dental journals available, 89 of which are available online. Resources specific to Infectious Disease include 1,349 titles, 388 eBooks, 99 infectious disease journals, eighty-four which are available online. In an effort to support remote access to information, the library has reduced and its print holdings to focus on the acquisition of digital collections. KHSL currently subscribes to 5,106 health sciences journals in electronic format.

KHSL has developed an extensive collection of electronic journals, books, databases, and evidence-based resources accessible 24/7 from on campus or from home. In addition to the journals and books referenced above, Kornhauser hosts several databases including Lexi-Comp for Dentistry, ***MEDLINE (EBSCO, Ovid, PubMed), DynaMed, AccessMedicine, TRIP Database, Acland's Video Atlas of Human Anatomy, Essential Evidence Plus, and the Cochrane Library. Anatomy TV for Dentistry, ClinicalKey, EMBASE, EBSCO Discovery Health, STAT!Ref for Dentistry.*** The library web page provides links to all of the library resources. Updates on resources are communicated through email, print newsletters, faculty development workshops, and department faculty meetings.

In addition to the in-house resources, as a member of the Greater Midwest Regional Medical Library Program, KSHL is able to offer ready access to the library collections in ten Midwestern states. Interlibrary loan (ILL) services are available to all students, staff and faculty of the University of Louisville free-of-charge. The ILL office can borrow almost any item published from any library in the world, either in the original format, or as a photocopy. Also, our Document Delivery Service can electronically send an article or book chapter from a library-owned resource to a requestor's office or home.

The KHSL staff also facilitates the understanding and use of the resources. To foster a supportive learning environment, the staff offers extensive reference assistance, helping users to formulate online search strategies, validate citations, and locate materials. Librarian liaisons provide in-depth consultation and training sessions by appointment for faculty, students, and residents; classroom instruction is available by request.

No additional resources or library materials expenditures should be required to support the School of Dentistry residency programs unless there are specific requests for additions to the library collections. We do rely on the recommendations of the University of Louisville health sciences professionals to help develop KHSL collections and services and welcome any suggestions.

Please contact us if you have any questions or need additional information.

Respectfully,

Vida M Vaughn

Vida M. Vaughn
Acting Director
Kornhauser Health Sciences Library

University of Louisville • Louisville, KY 40292
P: 502.852.5771 **F:** 502.852.1631 **W:** louisville.edu

UNIVERSITY OF LOUISVILLE

Toni M. Ganzel, MD, MBA, FACS
Dean of the School of Medicine
Vice President for Academic Medical Affairs
Professor of Otolaryngology

October 1, 2020

Dr. Beth Boehm
Executive Vice President and University Provost
University of Louisville
Grawemeyer Hall

Dear Beth,

I am pleased to provide a statement of support for the attached proposal to establish the Center for Microbiomics, Inflammation and Pathogenicity (CMIP) by Dr. Rich Lamont from the School of Dentistry and Dr. Haribabu Bodduluri from the School of Medicine. I have reviewed the proposal and am confident that it will be successful and an asset to the institution. The purpose of the center is to facilitate advances in microbiome-related diseases, an evolving and critical component of human health and disease. The interconnectivity between the microbiome and the immune response necessitates an integrated approach to study, which the center will facilitate. As outlined in the proposal, the center will serve to sustain and expand on the success of the NIH P20 CoBRE grant, which has an outstanding record thus far of developing junior investigators' progression to becoming independent investigators. The center also links with one of our grand challenges to enhance human health.

The only additional financial support being requested at this time for sustainability is the 6% Research Investment Funding (RIF) from F&A resources. Dr. Kevin Gardner, as EVPRI, is fully supportive of moving this center forward, as is Dr. Craig McClain, as AVP Health Affairs Research.

Sincerely,

Toni M. Ganzel

Toni M. Ganzel, MD, MBA

UNIVERSITY OF LOUISVILLE

Kevin H. Gardner, PhD
Executive Vice President for Research and Innovation
Professor of Civil and Environmental Engineering

January 18, 2021

Richard J. Lamont, Ph.D.
Delta Dental Endowed Professor
Chair, Oral Immunology and Infectious Diseases
University of Louisville

RE: Creation of the Center for Microbiomics, Inflammation and Pathogenicity (CMIP)

Dear Dr. Lamont:

I am excited to strongly support your proposal for the creation of the Center for Microbiomics, Inflammation, and Pathogenecity (CMIP), which will be housed within the University of Louisville (UofL) School of Dentistry and under the oversight of the Vice President for Academic Medical Affairs at the Health Sciences Center. The field of microbiomics and inflammatory diseases has become a major research priority for the University of Louisville and is well aligned with our strategic plan Grand Challenge, Advancing Our Health. You and Dr. Bodduluri have created a strong foundation with the development of the P20 COBRE on Functional Microbiomics, Inflammation and Pathogenecity and the formation of an experienced team of investigators that are supported with substantial extramural funding from the National Institutes of Health (11 R01s, 3 R21s, and 1 R13). The formation of the UofL CMIP is a critical next step in advancing our understanding of the microbiome and its role in inflammation and CMIP will expand partnerships and collaborations among UofL researchers that will solidify UofL as a global leader in this emerging scientific field.

Upon approval of the CMIP by the UofL Board of Trustees, the Office of the EVPRI is pleased to provide Center Research Infrastructure Funds (RIF) equivalent to 6% of facilities and administrative (F&A) reimbursements on externally sponsored grants and contracts that are 1) aligned with and contribute to the mission of the CMIP and 2) under the oversight of a faculty member formally affiliated with the center. Distribution of Center RIF is dependent upon the availability of funding for university centers and institutes and on the submission and acceptance of an annual center report to the Office of the EVPRI. Additional information on Center RIF, including the appropriate use of this funding may be found at https://louisville.edu/research/support/rif/research-infrastructure-funds-centers-institutes-crif.

I am very pleased to offer my strong and enthusiastic support to the CMIP and to your proposal. I wish you great success with this Center and look forward to the contributions that CMIP will make to the UofL research enterprise and to the health of society and our nation.

Sincerely,

Kevin H Gardner

Kevin Gardner
Executive Vice President for Research and Innovation
Professor, Civil and Environmental Engineering

Jouett Hall, Room 202 · University of Louisville · Louisville, KY 40292
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