- CLARENCE M. LEE -

Education

B.S.,

Ph.D., Howard University (1969)

Credentials

Previous Dean of COAS at Howard University

Executive director for Washington-Baltimore Hamptons Roads Aliance

1998 - Outstanding Visionary Award, COAS at Howard University

1998 - COAS Alumni Coalitions Mentoring Award

1995 - Vantage Award for Academic Excellence

1992 - Howard University Leadership Award

1984 - Bergen-Passaic Alumni Award for Outstanding Service

1983 - Georgetown Univ. Distinguished Service Award

Courses

Experimental Parasitology (406)

Research Interests

Immunopathology and Parasitology

Determination of inheritance patterns in teleostean fishes

Genetics of Sceloporus jarrovi populations

Grants and Funding Awards

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Research Detailed:

Immunoparasitology: The study of immuno-modulation in animals due to protozoan and helminthic infections; examination of mechanisms of protective immunity to flagellated protozoan; the role of nutrients and trace elements in the immune process; identifying and validating drug targets in trypanosomes. Two studies that were recently completed are summarized below:

L3L4ES antigen and secretagogues induce histamine release from porcine peripheral blood basophils were studied following Ascaris suum infection

Experimental pigs were infected with 103 Ascaris suum eggs daily for 21 days. Control pigs were maintained helminth-free. Circulating porcine basophils were isolated from the anticoagulated whole blood of A. suum-infected and non-infected pigs by dextran (4.5%) sedimen­tation of erythrocytes or by the centrifugation of dextran-isolated leukocytes through discontinuous Percoll gradients with varying densities. Results showed that 2.2% of the isolated leukocytes, stained with May-Grunwald Giemsa, was basophils. Each basophil isolated from infected pigs contained 1.30 x 10-2 to 1.20 x 10-1 picogram (10-12 g) of histamine. Peripheral blood basophils (PBB) isolated from infected swine released as much as 49% specific histamine when induced with A.suum-derived antigen (L3,L4 ES); up to 55% with anti-IgG; and up to 62% with the calcium ionophore A23l87. During A. suum infection, the number of isolated basophils and histamine levels peaked at 14 to 21 days post infection and then showed a significant decrease. The percent specific histamine released from PBB by the infected swine was significantly greater than that released by control pigs. The L3L4 ES antigen and secretagogues effectively induced specific histamine release from PBB and should facilitate future investigations of porcine basophils.

Apoptosis of Trypanosoma musculi co-cultured with LPS activated macrophages by enhanced expression of Nitric Oxide Synthase and INF-gamma.

Trypanosoma musculi-macrophage cells co-culture was studied to demonstrate the biological role of lipopolysaccharide (LPS) induced cytokines and reactive species in controlling the development of parasites in vitro. Macrophages were activated with 0.5µg/ml LPS in RPMI media 1640. The activation of macrophages was demonstrated by phagocytosis of blue fluorescence latex spheres. The detection of gamma interferon

(INF-gamma) and inducible nitric oxide synthase (iNOS) using western blot analysis and immunofluoresence further indicates the activation of macrophages. Activated macrophages showed marked inhibition of association and development of parasites. The dead rosette form floating parasites tested for caspace 3 and 8 using western blot analysis that confirmed the parasites died through apoptosis. Apoptosis was further confirmed by Apoptag gel fragmentation assay. The data would suggest that INF-gamma and NO possibly functioning through the INFaR1, Fas ligand, CD95 or other death ligands in the trypanosome plasma membrane initiates the apoptosis cascade in trypanosome.

Selected Publications

Ayuk, M., Suttiprppa S., Rinaldi G., Mann V., Lee C.M., and Brindley, P., International Journal for Parasitology 41, 2011. 783-789

On’gele, E.A., Lee, C.M., and Knight, M. 2002. Use of Differential Display Polymerase Chain Reaction to Search for Host Response Gene Products during the Intramolluscan Phase of Schistosoma mansoni Infection. Transactions of the National Institute of Science, 38, 15-19.

Toran, E.J., Lee, C.M., Thomas, L., and Rolle, R. 2003. Molecular Malarial Antigen Responsible for Activation of B Lymphocytes.(GenBank)http://www.ncbi.nlm.nih.gov Accession number: AY180902.

Uston, P.I. and Lee, C.M. 2003. Characterization and Function of the Multifaceted Peripheral Blood Basophil. Cellular and Molecular Biology, 49(7), 1125-1135.

R A. Nesbitt, R. A., Mosha. F. W., Katki, H. A.,Ashraf, M., Lee, C. M. 2004. Amebiasis in Kilimanjaro Tanzania and comparison of the microscopy to ELISA technique in the detection of Entamoeba histolytica and Entamoeba dispar. Journal of the National Medical Association, 96,671-677.

C,M,Lee and E. Armstrong 2004. Trypanosomes. Encyclopedia of Entomology, 3:2362-2366

C.M.Lee and E.Armstrong, 2004. Rodent Trypanosomiasis: A Comparison between Trypanosoma lewisi and Trypanosoma musculi Encyclopedia of Entomology.3:1917-1919

A. Gugssa, S. Gebru, C.M. Lee. B. Baccetti and W. Anderson. 2005.Apoptosis of Trypanosoma musculi co-cultured with LPS activated macrophages: enhanced expression of nitric oxide synthase INF-gamma and caspase. Journal of Submicrosc. Cytol. Pathol., 37 (2), 99-107

A. Gugssa, C.M. Lee, S. Gebru, D.Desta, S. Murray. B. Baccetti and W. Anderson 2005.Co-culture of Trypanosoma musculi with spleen-derived adherent fibroblasts: possible transfer of small molecules via connexons. Journal of Submicrosc. Cytol. Pathol 37(3-4), 223-229.

P.I. Uston, J.F. Urban, M. Ashraf, C.M. Lee and F.R. Ampy 2007. L3L4ES antigen and secretagogues induce histamine release from porcine peripheral blood basophils after Ascaris suum infection Parasitology Research 100, 603-611.