

## Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways

\*Emmanuel Ifeanyi Obeagu<sup>1</sup> and Getrude Uzoma Obeagu<sup>2</sup>

<sup>1</sup>Department of Medical Laboratory Science, Kampala International University, Uganda.

<sup>2</sup>School of Nursing Science, Kampala International University, Uganda.

\*Corresponding author: Emmanuel Ifeanyi Obeagu, [Department of Medical Laboratory Science, Kampala International University, Uganda, \[emmanuelobeagu@yahoo.com\]\(mailto:emmanuelobeagu@yahoo.com\), ORCID: 0000-0002-4538-0161](#)

### Abstract

Tuberculosis (TB) and human immunodeficiency virus (HIV) coinfection pose significant challenges to global health, with dysregulated immune cell trafficking contributing to disease progression and morbidity. L-selectin, a key cell adhesion molecule, plays a pivotal role in orchestrating immune cell trafficking by mediating leukocyte adhesion to endothelial cells and subsequent migration to inflamed tissues. In this review, we explore the impact of L-selectin pathways on immune cell trafficking dynamics in the context of TB-HIV coinfection. We discuss the mechanisms underlying L-selectin-mediated immune cell recruitment and its modulation by TB and HIV, highlighting the implications for disease pathogenesis. Furthermore, we examine the therapeutic potential of targeting L-selectin pathways to restore immune competence and improve clinical outcomes in TB-HIV coinfection. Understanding the intricate interplay between L-selectin and immune cell trafficking in TB-HIV coinfection is crucial for elucidating disease mechanisms and developing effective therapeutic strategies.

### Introduction

Tuberculosis (TB) and human immunodeficiency virus (HIV) coinfection present a formidable challenge to global health due to their synergistic impact on immune function and disease progression. The intricate interplay between these pathogens disrupts immune cell trafficking, a fundamental process essential for mounting effective immune responses against infection. L-selectin, a cell surface molecule expressed on leukocytes, plays a central role in regulating immune cell trafficking by facilitating leukocyte adhesion to endothelial cells and subsequent migration to

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. Elite Journal of Immunology, 2024; 2(2): 43-59

sites of inflammation. In the context of TB-HIV coinfection, dysregulation of L-selectin pathways profoundly influences immune cell recruitment dynamics, contributing to immune dysfunction and disease pathogenesis. The dysregulation of L-selectin-mediated immune cell trafficking in TB-HIV coinfection arises from multiple factors, including HIV-induced immunosuppression and TB-associated inflammation. HIV infection leads to depletion of CD4<sup>+</sup> T cells and impairment of immune responses, resulting in compromised leukocyte recruitment and defective immune surveillance. Concurrently, TB infection triggers robust inflammatory responses, further exacerbating immune dysregulation and altering L-selectin expression and function. These complex interactions disrupt the balance of immune cell trafficking, impairing host defense mechanisms and facilitating disease progression in coinfecting individuals.<sup>1-30</sup>

Understanding the mechanisms underlying L-selectin-mediated immune cell trafficking in TB-HIV coinfection is critical for elucidating disease pathogenesis and identifying novel therapeutic targets. Targeting L-selectin pathways represents a promising approach to modulate immune cell recruitment dynamics and restore immune competence in coinfecting individuals. Strategies aimed at modulating L-selectin expression, blocking L-selectin interactions, or enhancing L-selectin signaling may enhance host defense mechanisms and mitigate disease progression. Additionally, combinatorial approaches that integrate L-selectin-targeted therapies with existing treatment modalities hold potential for synergistic effects and improved clinical outcomes in TB-HIV coinfection. Despite the therapeutic potential of targeting L-selectin pathways, challenges remain in translating these strategies into clinical practice. Further research is needed to elucidate the precise roles of L-selectin in TB-HIV coinfection and to validate the efficacy and safety of L-selectin-targeted interventions in clinical settings. Moreover, personalized therapeutic approaches that consider individual patient characteristics and disease profiles may optimize treatment outcomes and minimize adverse effects. By unraveling the complexities of L-selectin-mediated immune cell trafficking in TB-HIV coinfection, we can advance our understanding of disease pathogenesis and develop innovative strategies to combat this dual epidemic.<sup>31-51</sup>

### **L-selectin in Immune Cell Trafficking**

L-selectin, a cell adhesion molecule predominantly expressed on leukocytes, serves as a crucial regulator of immune cell trafficking. Its role in facilitating leukocyte adhesion to endothelial cells within the bloodstream and subsequent migration to inflamed tissues is fundamental for mounting effective immune responses. Upon activation, L-selectin binds to its ligands on endothelial cells, initiating a cascade of events that mediate leukocyte rolling and adhesion, essential steps in the extravasation process. This process allows immune cells to infiltrate sites of infection or inflammation, where they can execute their effector functions and contribute to host defense mechanisms. L-selectin-mediated immune cell trafficking plays a particularly significant role in the context of infectious diseases such as tuberculosis (TB) and human immunodeficiency virus (HIV) infection. In TB, immune cells must navigate through complex tissue structures to reach the site of infection within the lungs. L-selectin facilitates this process by promoting the adhesion and migration of leukocytes across the endothelial barrier, enabling their recruitment to the site of mycobacterial invasion. Similarly, in HIV infection, L-selectin-mediated immune cell trafficking

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59

is essential for orchestrating immune responses against the virus and containing viral spread within the host.<sup>51-72</sup>

However, dysregulation of L-selectin expression and function can have profound implications for immune cell trafficking dynamics and contribute to disease pathogenesis. In TB-HIV coinfection, alterations in L-selectin pathways may disrupt the coordinated recruitment of immune cells to sites of infection, compromising the host's ability to mount an effective immune response. HIV-induced immunosuppression and dysregulation of inflammatory responses further exacerbate these effects, leading to impaired immune surveillance and increased susceptibility to TB reactivation or progression. Understanding the intricate interplay between L-selectin and immune cell trafficking dynamics is crucial for elucidating disease mechanisms and identifying novel therapeutic targets. Targeting L-selectin pathways represents a promising approach for modulating immune cell trafficking and restoring immune function in TB-HIV coinfection. By developing strategies aimed at modulating L-selectin expression, blocking L-selectin interactions, or enhancing L-selectin signaling, it may be possible to improve immune cell recruitment to sites of infection and enhance host defense mechanisms against TB and HIV.<sup>73-88</sup>

### **Role of L-selectin in TB-HIV Coinfection**

In the intricate interplay between tuberculosis (TB) and human immunodeficiency virus (HIV) coinfection, L-selectin emerges as a critical mediator governing immune cell trafficking dynamics. L-selectin, primarily expressed on leukocytes, orchestrates the intricate process of immune cell recruitment to sites of infection or inflammation. In the context of TB-HIV coinfection, the role of L-selectin becomes particularly significant, as dysregulation of its pathways can profoundly impact disease progression and clinical outcomes. L-selectin facilitates the adhesion of leukocytes to endothelial cells, a crucial step in immune cell extravasation into tissues. In TB-HIV coinfection, dysregulated L-selectin pathways may disrupt the coordinated recruitment of immune cells to sites of infection, compromising the host's ability to mount an effective immune response. The unique immune landscape in TB-HIV coinfection presents challenges that further accentuate the importance of L-selectin in immune cell trafficking. HIV-induced immunosuppression and dysregulation of inflammatory responses can impair L-selectin-mediated immune cell trafficking, leading to ineffective immune surveillance and increased susceptibility to TB reactivation or progression. Additionally, TB-associated inflammation may exacerbate HIV replication and immune activation, exacerbating immune dysfunction in coinfecting individuals. Thus, understanding the role of L-selectin in TB-HIV coinfection is essential for elucidating disease mechanisms and developing targeted therapeutic interventions. Furthermore, L-selectin's involvement in immune cell trafficking extends beyond its role in initial leukocyte adhesion. It also influences subsequent steps in the immune response, such as leukocyte migration and activation. Dysregulation of L-selectin expression and signaling pathways may impair immune cell localization to sites of infection or compromise their effector functions, further exacerbating immune dysfunction in TB-HIV coinfection. Consequently, targeting L-selectin pathways represents a promising therapeutic strategy for modulating immune cell trafficking and restoring immune function in TB-HIV coinfection.<sup>89-119</sup>

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59

## Therapeutic Targeting of L-selectin Pathways

Therapeutic targeting of L-selectin pathways represents a promising strategy for modulating immune cell trafficking and restoring immune function in tuberculosis (TB) and human immunodeficiency virus (HIV) coinfection. Given the crucial role of L-selectin in facilitating immune cell recruitment to sites of infection or inflammation, interventions aimed at modulating L-selectin expression, blocking L-selectin interactions, or enhancing L-selectin signaling hold significant therapeutic potential. One approach to targeting L-selectin pathways involves modulating its expression levels on leukocytes. Strategies aimed at upregulating L-selectin expression could enhance immune cell recruitment to sites of infection, thereby improving host defense mechanisms against TB and HIV. Conversely, downregulating L-selectin expression may be beneficial in certain contexts, such as reducing excessive leukocyte infiltration and inflammation in chronic infections. Pharmacological agents or biological therapies that selectively modulate L-selectin expression levels could offer precise control over immune cell trafficking dynamics. Another therapeutic strategy involves blocking L-selectin interactions with its ligands on endothelial cells. By preventing the initial adhesion of leukocytes to the endothelial surface, these agents could inhibit immune cell extravasation into inflamed tissues, thereby reducing tissue damage and inflammation. Monoclonal antibodies or small molecule inhibitors targeting L-selectin-ligand interactions have shown promise in preclinical models of inflammatory diseases and could be further explored for their therapeutic efficacy in TB-HIV coinfection.<sup>120-140</sup>

Enhancing L-selectin signaling represents another avenue for therapeutic intervention. Augmenting L-selectin-mediated signaling pathways could promote immune cell activation and effector functions, thereby enhancing host defense mechanisms against TB and HIV. This approach may involve the use of agonistic antibodies or small molecule agonists targeting L-selectin receptors or downstream signaling molecules. By potentiating L-selectin-mediated immune responses, these agents could improve immune cell trafficking and function in TB-HIV coinfection. Combination therapies targeting multiple components of the L-selectin pathway may offer synergistic effects and improved therapeutic outcomes. For example, combining agents that modulate L-selectin expression with those targeting its interactions with endothelial ligands could provide complementary mechanisms of action, resulting in enhanced control over immune cell trafficking dynamics. Similarly, combining L-selectin-targeted therapies with existing anti-TB or antiretroviral therapies could potentiate their efficacy and improve clinical outcomes in TB-HIV coinfection.<sup>141-145</sup>

## Conclusion

Tuberculosis (TB) and human immunodeficiency virus (HIV) coinfection represents a significant global health challenge, with dysregulated immune cell trafficking contributing to disease progression and poor clinical outcomes. L-selectin, a key mediator of immune cell recruitment and trafficking, plays a central role in orchestrating immune responses in TB-HIV coinfection. Dysregulation of L-selectin pathways can impair immune cell recruitment to sites of infection, compromise host defense mechanisms, and exacerbate immune dysfunction. Despite the

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59

complexities of TB-HIV coinfection, therapeutic targeting of L-selectin pathways offers promising avenues for intervention. Modulating L-selectin expression, blocking its interactions with endothelial ligands, or enhancing its signaling pathways represent potential strategies to restore immune competence and improve clinical outcomes. Additionally, combination therapies targeting multiple components of the L-selectin pathway may provide synergistic effects and enhanced therapeutic efficacy.

## References

1. Nath A. Neurologic complications of human immunodeficiency virus infection. *Continuum: Lifelong Learning in Neurology*. 2015;21(6):1557-1576.
2. Nookala AR, Mitra J, Chaudhari NS, Hegde ML, Kumar A. An overview of human immunodeficiency virus type 1-associated common neurological complications: does aging pose a challenge? *Journal of Alzheimer's Disease*. 2017;60(s1):S169-S193.
3. Almodovar S. The complexity of HIV persistence and pathogenesis in the lung under antiretroviral therapy: challenges beyond AIDS. *Viral immunology*. 2014;27(5):186-199.
4. Obeagu EI. An update on susceptibility of individuals to diseases based on ABO blood groups. *Int. J. Curr. Res. Med. Sci*. 2019;5(3):1-8.
5. Obeagu EI, Babar Q, Vincent CC, Okafor CJ, Eze R, Chijioke UO, Ibekwe AM, Uduchi IO. Pulmonary Embolism in Covid-19 Pandemic: A Threat to Recovery of the Infected Patients. *Journal of Pharmaceutical Research International*. 2021;33(42A):90-98.
6. Obeagu EI, Obeagu GU. Platelet-Driven Modulation of HIV: Unraveling Interactions and Implications. *Journal home page: <http://www.journalijar.com>*. 2024;12(01).
7. Onuigwe FU, Ambi H, Uchechukwu NJ, Obeagu EI. Platelet Dysfunction in Diabetes Mellitus. *Elite Journal of Medicine*. 2024;2(2):1-7.
8. Obeagu EI, Obeagu GU. Studies on platelets diagnostic indexes in patients with acute myeloid leukaemia in Uganda. *Int. J. Curr. Res. Med. Sci*. 2023;9(1):24-27.
9. Obeagu EI, Okechukwu PU, Alum EU, Obeagu GU, Opoku D, Scott GY, Amekpor F. Platelets as actors in inflammation and immunity: A fulcrum in immunity. *Int. J. Adv. Res. Biol. Sci*. 2023;10(3):81-89.
10. Obeagu EI, Mbabazi A, Obeagu GU, Muhimbura E, Igwe MC, Owunna TA, Okafor CJ, Jakheng SP. Evaluation of Platelets and Some Inflammation Markers of Patients with Acute Myeloid Leukaemia In A Tertiary Hospital In Uganda. *Madonna University journal of Medicine and Health Sciences ISSN: 2814-3035*. 2022;2(3):78-84.
11. Obeagu EI, Obeagu GU. Platelet Distribution Width (PDW) as a Prognostic Marker for Anemia Severity in HIV Patients: A Comprehensive Review. *Journal home page: <http://www.journalijar.com>*;12(01).
12. Ifeanyi OE, Favour AA, Prayer NN. Updates on Human Immunodeficiency Virus and Platelets. *Int. J. Adv. Res. Biol. Sci*. 2020;7(6):1-7.
13. Obeagu EI, Muhimbura E, Kagenderezo BP, Nakyeyune S, Obeagu GU. An Insight of Interleukin-6 and Fibrinogen: In Regulating the Immune System. *J Biomed Sci*. 2022;11(10):83.

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59



14. Obeagu EI, Okwuanaso CB, Edoho SH, Obeagu GU. Under-nutrition among HIV-exposed Uninfected Children: A Review of African Perspective. *Madonna University journal of Medicine and Health Sciences*. 2022;2(3):120-127.
15. Obeagu EI, Alum EU, Obeagu GU. Factors associated with prevalence of HIV among youths: A review of Africa perspective. *Madonna University journal of Medicine and Health Sciences*. 2023;3(1):13-18.  
<https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/93>.
16. Obeagu EI. A Review of Challenges and Coping Strategies Faced by HIV/AIDS Discordant Couples. *Madonna University journal of Medicine and Health Sciences*. 2023 ;3(1):7-12.  
<https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/91>.
17. Obeagu EI, Obeagu GU. An update on premalignant cervical lesions and cervical cancer screening services among HIV positive women. *J Pub Health Nutri*. 2023; 6 (2). 2023; 141:1-2. [links/63e538ed64252375639dd0df/An-update-on-premalignant-cervical-lesions-and-cervical-cancer-screening-services-among-HIV-positive-women.pdf](https://doi.org/10.22192/ijcrms.2017.03.01.004).
18. Ezeoru VC, Enweani IB, Ochiabuto O, Nwachukwu AC, Ogbonna US, Obeagu EI. Prevalence of Malaria with Anaemia and HIV status in women of reproductive age in Onitsha, Nigeria. *Journal of Pharmaceutical Research International*. 2021;33(4):10-19.
19. Omo-Emmanuel UK, Chinedum OK, Obeagu EI. Evaluation of laboratory logistics management information system in HIV/AIDS comprehensive health facilities in Bayelsa State, Nigeria. *Int J Curr Res Med Sci*. 2017;3(1): 21-38.DOI: [10.22192/ijcrms.2017.03.01.004](https://doi.org/10.22192/ijcrms.2017.03.01.004)
20. Obeagu EI, Obeagu GU, Musiimenta E, Bot YS, Hassan AO. Factors contributing to low utilization of HIV counseling and testing services. *Int. J. Curr. Res. Med. Sci*. 2023;9(2): 1-5.DOI: [10.22192/ijcrms.2023.09.02.001](https://doi.org/10.22192/ijcrms.2023.09.02.001)
21. Obeagu EI, Obeagu GU. An update on survival of people living with HIV in Nigeria. *J Pub Health Nutri*. 2022; 5 (6). 2022;129. [links/645b4bfcf3512f1cc5885784/An-update-on-survival-of-people-living-with-HIV-in-Nigeria.pdf](https://doi.org/10.22192/ijcrms.2023.09.02.001).
22. Offie DC, Obeagu EI, Akueshi C, Njab JE, Ekanem EE, Dike PN, Oguh DN. Facilitators and barriers to retention in HIV care among HIV infected MSM attending Community Health Center Yaba, Lagos Nigeria. *Journal of Pharmaceutical Research International*. 2021;33(52B):10-19.
23. Obeagu EI, Ogbonna US, Nwachukwu AC, Ochiabuto O, Enweani IB, Ezeoru VC. Prevalence of Malaria with Anaemia and HIV status in women of reproductive age in Onitsha, Nigeria. *Journal of Pharmaceutical Research International*. 2021;33(4):10-19.
24. Obeagu EI, Muhimbura E, Kagenderezo BP, Nakyeyune S, Obeagu GU. An Insight of Interleukin-6 and Fibrinogen: In Regulating the Immune System. *J Biomed Sci*. 2022;11(10):83.
25. Okoroiwu IL, Obeagu EI, Vivian Egwim V. Assessment of White Blood Cell Count and Platelet Count in Women on Hormonal Contraceptives in Owerri, Imo State, Nigeria. *J Res Med Dent Sci*. 2021;9(12):498-501.
26. Obeagu EI, Okoroiwu IL, Obeagu GU. Relationship between Thrombopoietin and Interleukin 3: A Review. *Int J Curr Res Chem Pharm. Sci*. 2022;9(1):7-13.

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59

27. Ukonu UC, Nwosu DC, Okoroiwu LI, Dike-Ndudim JN, Ukonu GO, Obeagu EI. Evaluation of Alloantibodies to human platelet antigen and Leucocyte antigen class 1 in Multitransfused patients in Owerri, Imo state. *Int. J. Curr. Res. Med. Sci.* 2023;9(1):38-44.
28. Obeagu EI. Gestational Thrombocytopenia. *J Gynecol Women's Health.* 2023;25(3):556163.
29. Okoroiwu IL, Obeagu EI, Obeagu GU. Determination of clot retraction in pregnant women attending antenatal clinic in federal medical centre Owerri, Nigeria. *Madonna University Journal of Medicine and Health Sciences.* 2022;2(2):91-97.
30. Ezimah AC, Obeagu EI, Asur A, Ezimah UA, Ezimah CO. Absolute platelet count in adult patients with musculoskeletal pain: Current perspectives. *Int. J. Curr. Res. Med. Sci.* 2016;2(2):30-7.
31. Anyiam AF, Musa Muhibi MA, Iyare G, Omosigho PO, Olaniyan MF, Arinze-Anyiam OC, Oluwafemi E, Obeagu EI. Effects of different Extracts of *Phyllanthus amarus* on selected haematological and haemostatic parameters of Leukemic Wistar Rats. *Elite Journal of Medica Science.* 2024;2(1):23-43.
32. Okoroiwu IL, Obeagu EI, Anaebo QB, Walter O. Evaluation of activated partial thromboplastin time and prothrombin time in HIV and TB patients in Owerri metropolis. *J Pharm Res Int.* 2022;21:29-34.
33. Obeagu EI, Ikpenwa JN, Chukwueze CM, Obeagu GU. Evaluation of protein C, protein S and fibrinogen of pregnant women in Owerri Metropolis. *Madonna University Journal of Medicine and Health Sciences* ISSN: 2814-3035. 2022 Apr 18;2(1):292-8.
34. Oloro OH, Oke TO, Obeagu EI. Evaluation of coagulation profile patients with pulmonary tuberculosis and human immunodeficiency virus in Owo, Ondo state, Nigeria. *Madonna University journal of Medicine and Health Sciences* ISSN: 2814-3035. 2022 Oct 16;2(3):110-9.
35. Ohale AC, Obeagu EI, Mark HA, Okoli CC, Ezepue CB, Ohanu CE, Okongwu UC, Nlemadim CI, Ekeigwe IB, Okeke OA. The Sub-Acute Effects of Raw Honey on Prothrombin Time, Activated Partial Thromboplastin Time and Platelet Values in Albino Wistar Rats. *Journal of Advances in Medicine and Medical Research.* 2020 Oct 1;32(17):68-73.
36. Odo M, Ochei KC, Obeagu EI, Barinaadaa A, Eteng UE, Ikpeme M, Bassey JO, Paul AO. TB Infection Control in TB/HIV Settings in Cross River State, Nigeria: Policy Vs Practice. *Journal of Pharmaceutical Research International.* 2020;32(22):101-119.
37. Obeagu EI, Eze VU, Alaebob EA, Ochei KC. Determination of haematocrit level and iron profile study among persons living with HIV in Umuahia, Abia State, Nigeria. *J BioInnovation.* 2016; 5:464-471. [links/592bb4990f7e9b9979a975cf/DETERMINATION-OF-HAEMATOCRIT-LEVEL-AND-IRON-PROFILE-STUDY-AMONG-PERSONS-LIVING-WITH-HIV-IN-UMUAHIA-ABIA-STATE-NIGERIA.pdf](https://www.researchgate.net/publication/315555555_DETERMINATION-OF-HAEMATOCRIT-LEVEL-AND-IRON-PROFILE-STUDY-AMONG-PERSONS-LIVING-WITH-HIV-IN-UMUAHIA-ABIA-STATE-NIGERIA).
38. Ifeanyi OE, Obeagu GU. The values of prothrombin time among HIV positive patients in FMC owerri. *International Journal of Current Microbiology and Applied Sciences.* 2015;4(4):911-916.  
[https://www.academia.edu/download/38320140/Obeagu\\_Emanuel\\_Ifeanyi\\_and\\_Obeagu\\_Getrude\\_Uzoma2.EMMA1.pdf](https://www.academia.edu/download/38320140/Obeagu_Emanuel_Ifeanyi_and_Obeagu_Getrude_Uzoma2.EMMA1.pdf).

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59

39. Izuchukwu IF, Ozims SJ, Agu GC, Obeagu EI, Onu I, Amah H, Nwosu DC, Nwanjo HU, Edward A, Arunsi MO. Knowledge of preventive measures and management of HIV/AIDS victims among parents in Umuna Orlu community of Imo state Nigeria. *Int. J. Adv. Res. Biol. Sci.* 2016;3(10): 55-65.DOI; [10.22192/ijarbs.2016.03.10.009](https://doi.org/10.22192/ijarbs.2016.03.10.009)
40. Chinedu K, Takim AE, Obeagu EI, Chinazor UD, Eloghosa O, Ojong OE, Odunze U. HIV and TB co-infection among patients who used Directly Observed Treatment Short-course centres in Yenagoa, Nigeria. *IOSR J Pharm Biol Sci.* 2017;12(4):70-75. [links/5988ab6d0f7e9b6c8539f73d/HIV-and-TB-co-infection-among-patients-who-used-Directly-Observed-Treatment-Short-course-centres-in-Yenagoa-Nigeria.pdf](https://www.iosrjournals.org/ViewArticle.aspx?doi=10.22192/ijarbs.2016.03.10.009)
41. Oloro OH, Oke TO, Obeagu EI. Evaluation of Coagulation Profile Patients with Pulmonary Tuberculosis and Human Immunodeficiency Virus in Owo, Ondo State, Nigeria. *Madonna University journal of Medicine and Health Sciences.* 2022;2(3):110-119.
42. Nwosu DC, Obeagu EI, Nkwocha BC, Nwanna CA, Nwanjo HU, Amadike JN, Elendu HN, Ofoedeme CN, Ozims SJ, Nwankpa P. Change in Lipid Peroxidation Marker (MDA) and Non enzymatic Antioxidants (VIT C & E) in HIV Seropositive Children in an Urban Community of Abia State. Nigeria. *J. Bio. Innov.* 2016;5(1):24-30. [links/5ae735e9a6fdcc5b33eb8d6a/CHANGE-IN-LIPID-PEROXIDATION-MARKER-MDAAND-NON-ENZYMATIC-ANTIOXIDANTS-VIT-C-E-IN-HIV-SEROPOSITIVE-CHILDREN-IN-AN-URBAN-COMMUNITY-OF-ABIA-STATE-NIGERIA.pdf](https://www.iosrjournals.org/ViewArticle.aspx?doi=10.22192/ijarbs.2016.03.10.009).
43. Igwe CM, Obeagu IE, Ogbuabor OA. Clinical characteristics of people living with HIV/AIDS on ART in 2014 at tertiary health institutions in Enugu, Nigeria. *J Pub Health Nutri.* 2022; 5 (6). 2022;130. [links/645a166f5762c95ac3817d32/Clinical-characteristics-of-people-living-with-HIV-AIDS-on-ART-in-2014-at-tertiary-health-institutions-in-Enugu.pdf](https://www.iosrjournals.org/ViewArticle.aspx?doi=10.22192/ijarbs.2016.03.10.009).
44. Ifeanyi OE, Obeagu GU, Ijeoma FO, Chioma UI. The values of activated partial thromboplastin time (APTT) among HIV positive patients in FMC Owerri. *Int J Curr Res Aca Rev.* 2015; 3:139-144. [https://www.academia.edu/download/38320159/Obeagu\\_Emanuel\\_Ifeanyi3\\_et\\_al.IJC\\_RAR.pdf](https://www.academia.edu/download/38320159/Obeagu_Emanuel_Ifeanyi3_et_al.IJC_RAR.pdf).
45. Obimah CF, Obeagu EI, Ochei KC, Swem CA, Amachukwu BO. Hematological indices o HIV seropositive subjects in Nnamdi Azikiwe University teaching hospital (NAUTH), Nnewi. *Ann Clin Lab Res.* 2018;6(1):1-4. [links/5aa2bb17a6fdcc544b7526e/Haematological-Indices-of-HIV-Seropositive-Subjects-at-Nnamdi-Azikiwe.pdf](https://www.iosrjournals.org/ViewArticle.aspx?doi=10.22192/ijarbs.2016.03.10.009)
46. Reno TA, Tarnus L, Tracy R, Landay AL, Sereti I, Apetrei C, Pandrea I. The youngbloods. Get together. Hypercoagulation, complement, and NET formation in HIV/SIV pathogenesis. *Frontiers in Virology.* 2022; 1:795373.
47. Obeagu EI, Ogunnaya FU. Pregnancyinduced Haematological Changes: A Key to Maternal and Child Health. *European Journal of Biomedical.* 2023;10(8):42-43.
48. Obeagu EI, Chikelu IM, Obarezi TN, Ogbuabor BN, Anaabo QB. Haematological effects of fluted pumpkin (*Telfairia occidentalis*) leaves in rats. *International Journal of Life Sciences Biotechnology and Pharma Research.* 2014;3(1):172-182.

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59



49. Alum EU, Ugwu OP, Aja PM, Obeagu EI, Inya JE, Onyeije AP, Agu E, Awuchi CG. Restorative effects of ethanolic leaf extract of *Datura stramonium* against methotrexate-induced hematological impairments. *Cogent Food & Agriculture*. 2023;9(1):2258774.
50. Igwe MC, Obeagu EI. Determination of the Effect of Methanol Extract of *Tetrapleura Tetraptera* Fruit Osmotic Fragility of Erythrocytes, Platelet Aggregation and Phospholipase A2 Activity. *Ann. Clin. Lab. Res.* 2018; 6:250-255.
51. Obeagu EF, Onyenweaku FC, Nwobodo HA, Ochei KC, Ochiabuto Ogochukwu MT, Onwuasoanya UF. Impact of HIV and hepatitis b virus coinfection on selected haematological markers of the patients in Umuahia, Abia State, Nigeria. *Ann Clin Lab Res.* 2017;5(2):175.
52. Obeagu EI, Adepoju OJ, Okafor CJ, Obeagu GU, Ibekwe AM, Okpala PU, Agu CC. Assessment of Haematological Changes in Pregnant Women of Ido, Ondo State, Nigeria. *J Res Med Dent Sci.* 2021;9(4):145-148.
53. Ifeanyi OE, Obeagu GU. The values of prothrombin time among HIV positive patients in FMC owerri. *International Journal of Current Microbiology and Applied Sciences.* 2015;4(4):911-6.
54. Okorie HM, Obeagu EI, Eze EN, Jeremiah ZA. Assessment of coagulation parameters in malaria infected pregnant women in Imo state, Nigeria. *International Journal of Current Research in Medical Sciences.* 2018;4(9):41-9.
55. Obeagu EI, Babar Q, Vincent CC, Okafor CJ, Eze R, Chijioke UO, Ibekwe AM, Uduchi IO. Pulmonary Embolism in Covid-19 Pandemic: A Threat to Recovery of the Infected Patients. *Journal of Pharmaceutical Research International.* 2021 Aug 26;33(42A):90-8.
56. Ifeanyi OE, Obeagu GU, Ijeoma FO, Chioma UI. The values of activated partial thromboplastin time (APTT) among HIV positive patients in FMC Owerri. *Int J Curr Res Aca Rev.* 2015;3:139-44.
57. Edward Henry SI, Obeagu EI. Assessment of the Serum Iron Status of Preeclampsia Subjects in Aba, Abia State. *Elite Journal of Haematology.* 2024;2(1):10-8.
58. Omo-Emmanuel UK, Ochei KC, Osuala EO, Obeagu EI, Onwuasoanya UF. Impact of prevention of mother to child transmission (PMTCT) of HIV on positivity rate in Kafanchan, Nigeria. *Int. J. Curr. Res. Med. Sci.* 2017;3(2): 28-34.DOI: [10.22192/ijcrms.2017.03.02.005](https://doi.org/10.22192/ijcrms.2017.03.02.005)
59. Aizaz M, Abbas FA, Abbas A, Tabassum S, Obeagu EI. Alarming rise in HIV cases in Pakistan: Challenges and future recommendations at hand. *Health Science Reports.* 2023;6(8):e1450.
60. Obeagu EI, Amekpor F, Scott GY. An update of human immunodeficiency virus infection: Bleeding disorders. *J Pub Health Nutri.* 2023; 6 (1). 2023;139. [links/645b4a6c2edb8e5f094d9bd9/An-update-of-human-immunodeficiency-virus-infection-Bleeding.pdf](https://doi.org/10.22192/ijcrms.2017.03.02.005).
61. Obeagu EI, Scott GY, Amekpor F, Ofodile AC, Edoho SH, Ahamefula C. Prevention of New Cases of Human Immunodeficiency Virus: Pragmatic Approaches of Saving Life in Developing Countries. *Madonna University journal of Medicine and Health Sciences.* 2022;2(3):128-134.  
<https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/86>.

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59

62. Walter O, Anaebio QB, Obeagu EI, Okoroiwu IL. Evaluation of Activated Partial Thromboplastin Time and Prothrombin Time in HIV and TB Patients in Owerri Metropolis. *Journal of Pharmaceutical Research International*. 2022;29-34.
63. Odo M, Ochei KC, Obeagu EI, Barinaadaa A, Eteng EU, Ikpeme M, Bassey JO, Paul AO. Cascade variabilities in TB case finding among people living with HIV and the use of IPT: assessment in three levels of care in cross River State, Nigeria. *Journal of Pharmaceutical Research International*. 2020;32(24):9-18.
64. Jakheng SP, Obeagu EI. Seroprevalence of human immunodeficiency virus based on demographic and risk factors among pregnant women attending clinics in Zaria Metropolis, Nigeria. *J Pub Health Nutri*. 2022; 5 (8). 2022;137. [links/6317a6b1acd814437f0ad268/Seroprevalence-of-human-immunodeficiency-virus-based-on-demographic-and-risk-factors-among-pregnant-women-attending-clinics-in-Zaria-Metropolis-Nigeria.pdf](https://doi.org/10.22192/ijarbs.2023.10.09.015).
65. Obeagu EI, Obeagu GU. A Review of knowledge, attitudes and socio-demographic factors associated with non-adherence to antiretroviral therapy among people living with HIV/AIDS. *Int. J. Adv. Res. Biol. Sci*. 2023;10(9):135-142.DOI: 10.22192/ijarbs.2023.10.09.015 [links/6516faa61e2386049de5e828/A-Review-of-knowledge-attitudes-and-socio-demographic-factors-associated-with-non-adherence-to-antiretroviral-therapy-among-people-living-with-HIV-AIDS.pdf](https://doi.org/10.22192/ijarbs.2023.10.09.015)
66. Obeagu EI, Onuoha EC. Tuberculosis among HIV Patients: A review of Prevalence and Associated Factors. *Int. J. Adv. Res. Biol. Sci*. 2023;10(9):128-134.DOI: 10.22192/ijarbs.2023.10.09.014 [links/6516f938b0df2f20a2f8b0e0/Tuberculosis-among-HIV-Patients-A-review-of-Prevalence-and-Associated-Factors.pdf](https://doi.org/10.22192/ijarbs.2023.10.09.014).
67. Obeagu EI, Ibeh NC, Nwobodo HA, Ochei KC, Iwegbulam CP. Haematological indices of malaria patients coinfectd with HIV in Umuahia. *Int. J. Curr. Res. Med. Sci*. 2017;3(5):100-104.DOI: 10.22192/ijcrms.2017.03.05.014 [https://www.academia.edu/download/54317126/Haematological indices of malaria patients coinfectd with HIV.pdf](https://www.academia.edu/download/54317126/Haematological_indices_of_malaria_patients_coinfectd_with_HIV.pdf)
68. Oke OT, Eyitayo EF, Obeagu EI. Inhalation effect of insecticides on some Haematological parameters of rabbits. *Int. J. Curr. Res. Chem. Pharm. Sci*. 2022;9(9):1-9.
69. Obeagu EI, Obeagu GU, Obiezu J, Ezeonwumelu C, Ogunnaya FU, Ngwoke AO, Emeka-Obi OR, Ugwu OP. Hematologic Support in HIV Patients: Blood Transfusion Strategies and Immunological Considerations. *APPLIED SCIENCES (NIJBAS)*. 2023;3(3).
70. Ifeanyi OE, Obeagu GU. The values of prothrombin time among HIV positive patients in FMC owerri. *International Journal of Current Microbiology and Applied Sciences*. 2015;4(4):911-6.
71. Offie DC, Ibekwe AM, Agu CC, Esimai BN, Okpala PU, Obeagu EI, Ufelle SA, Ogonna LN. Fibrinogen and C-Reactive Protein Significance in Children Infected by Plasmodium falciparum Species in Enugu, Enugu State, Nigeria. *Journal of Pharmaceutical Research International*. 2021;33(15):1-8.
72. Obeagu E, Nwosu D, Obeagu III G. Antithrombin III: A Review. *Int. J. Curr. Res. Biol. Med*. 2022;7(2):20-27.

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59

73. Jakheng SP, Obeagu EI, Abdullahi IO, Jakheng EW, Chukwueze CM, Eze GC, Essien UC, Madekwe CC, Madekwe CC, Vidya S, Kumar S. Distribution Rate of Chlamydial Infection According to Demographic Factors among Pregnant Women Attending Clinics in Zaria Metropolis, Kaduna State, Nigeria. *South Asian Journal of Research in Microbiology*. 2022;13(2):26-31.
74. Viola N, Kimono E, Nuruh N, Obeagu EI. Factors Hindering Elimination of Mother to Child Transmission of HIV Service Uptake among HIV Positive Women at Comboni Hospital Kyamuhunga Bushenyi District. *Asian Journal of Dental and Health Sciences*. 2023;3(2):7-14. <http://ajdhs.com/index.php/journal/article/view/39>.
75. Okorie HM, Obeagu Emmanuel I, Okpoli Henry CH, Chukwu Stella N. Comparative study of enzyme linked immunosorbent assay (Elisa) and rapid test screening methods on HIV, Hbsag, Hcv and Syphilis among voluntary donors in. Owerri, Nigeria. *J Clin Commun Med*. 2020;2(3):180-183.DOI: **DOI:** [10.32474/JCCM.2020.02.000137](https://doi.org/10.32474/JCCM.2020.02.000137)  
[links/5f344530458515b7291bd95f/Comparative-Study-of-Enzyme-Linked-Immunosorbent-Assay-ElISA-and-Rapid-Test-Screening-Methods-on-HIV-HBsAg-HCV-and-Syphilis-among-Voluntary-Donors-in-Owerri-Nigeria.pdf](https://www.researchgate.net/publication/35344530458515b7291bd95f/Comparative-Study-of-Enzyme-Linked-Immunosorbent-Assay-ElISA-and-Rapid-Test-Screening-Methods-on-HIV-HBsAg-HCV-and-Syphilis-among-Voluntary-Donors-in-Owerri-Nigeria.pdf).
76. Ezugwu UM, Onyenekwe CC, Ukibe NR, Ahaneku JE, Onah CE, Obeagu EI, Emeje PI, Awalu JC, Igbokwe GE. Use of ATP, GTP, ADP and AMP as an Index of Energy Utilization and Storage in HIV Infected Individuals at NAUTH, Nigeria: A Longitudinal, Prospective, Case-Controlled Study. *Journal of Pharmaceutical Research International*. 2021;33(47A):78-84.
77. Emmanuel G, Martin O, Peter OS, Obeagu EI, Daniel K. Factors Influencing Early Neonatal Adverse Outcomes among Women with HIV with Post Dated Pregnancies Delivering at Kampala International University Teaching Hospital, Uganda. *Asian Journal of Pregnancy and Childbirth*. 2023 Jul 29;6(1):203-211. <http://research.sdpublishers.net/id/eprint/2819/>.
78. Igwe MC, Obeagu EI, Ogbuabor AO, Eze GC, Ikpenwa JN, Eze-Sтивен PE. Socio-Demographic Variables of People Living with HIV/AIDS Initiated on ART in 2014 at Tertiary Health Institution in Enugu State. *Asian Journal of Research in Infectious Diseases*. 2022;10(4):1-7.
79. Vincent CC, Obeagu EI, Agu IS, Ukeagu NC, Onyekachi-Chigbu AC. Adherence to Antiretroviral Therapy among HIV/AIDS in Federal Medical Centre, Owerri. *Journal of Pharmaceutical Research International*. 2021;33(57A):360-368.
80. Igwe MC, Obeagu EI, Ogbuabor AO. ANALYSIS OF THE FACTORS AND PREDICTORS OF ADHERENCE TO HEALTHCARE OF PEOPLE LIVING WITH HIV/AIDS IN TERTIARY HEALTH INSTITUTIONS IN ENUGU STATE. *Madonna University journal of Medicine and Health Sciences*. 2022;2(3):42-57. <https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/75>.
81. Madekwe CC, Madekwe CC, Obeagu EI. Inequality of monitoring in Human Immunodeficiency Virus, Tuberculosis and Malaria: A Review. *Madonna University journal of Medicine and Health Sciences*. 2022;2(3):6-15. <https://madonnauniversity.edu.ng/journals/index.php/medicine/article/view/69>

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59

82. Echendu GE, Vincent CC, Asodike M, Naze N, Chinidu EP, Ohale B, Obeagu EI. WEIGHTS OF INFANTS BORN TO HIV INFECTED MOTHERS: A PROSPECTIVE COHORT STUDY IN FEDERAL MEDICAL CENTRE, OWERRI, IMO STATE. *European Journal of Pharmaceutical and Medical Research*, 2023; 10(8): 564-568
83. Nwosu DC, Nwanjo HU, Okolie NJ, Ikeh K, Ajero CM, Dike J, Ojiegbe GC, Oze GO, Obeagu EI, Nnatananya I, Azuonwu O. BIOCHEMICAL ALTERATIONS IN ADULT HIV PATIENTS ON ANTIRETROVIRAL THERAPY. *World Journal of Pharmacy and Pharmaceutical Sciences*, 2015; 4(3): 153-160.  
[links/5a4fd0500f7e9bbc10526b38/BIOCHEMICAL-ALTERATIONS-IN-ADULT-HIV-PATIENTS-ON-ANTIRETROVIRAL-THERAPY.pdf](https://doi.org/10.5455/wjpps.2015.43153).
84. Obeagu EI, Obeagu GU. Effect of CD4 Counts on Coagulation Parameters among HIV Positive Patients in Federal Medical Centre, Owerri, Nigeria. *Int. J. Curr. Res. Biosci. Plant Biol.* 2015;2(4):45-49.
85. Obeagu EI, Nwosu DC. Adverse drug reactions in HIV/AIDS patients on highly active antiretro viral therapy: a review of prevalence. *Int. J. Curr. Res. Chem. Pharm. Sci.* 2019;6(12):45-8.DOI: [10.22192/ijcrps.2019.06.12.004](https://doi.org/10.22192/ijcrps.2019.06.12.004)  
[links/650aba1582f01628f0335795/Adverse-drug-reactions-in-HIV-AIDS-patients-on-highly-active-antiretro-viral-therapy-a-review-of-prevalence.pdf](https://doi.org/10.22192/ijcrps.2019.06.12.004).
86. Obeagu EI, Scott GY, Amekpor F, Obeagu GU. Implications of CD4/CD8 ratios in Human Immunodeficiency Virus infections. *Int. J. Curr. Res. Med. Sci.* 2023;9(2):6-13.DOI: [10.22192/ijcrms.2023.09.02.002](https://doi.org/10.22192/ijcrms.2023.09.02.002) [links/645a4a462edb8e5f094ad37c/Implications-of-CD4-CD8-ratios-in-Human-Immunodeficiency-Virus-infections.pdf](https://doi.org/10.22192/ijcrms.2023.09.02.002).
87. Obeagu EI, Ochei KC, Okeke EI, Anode AC. Assessment of the level of haemoglobin and erythropoietin in persons living with HIV in Umuahia. *Int. J. Curr. Res. Med. Sci.* 2016;2(4):29-33. [links/5711c47508aeebe07c02496b/Assessment-of-the-level-of-haemoglobin-and-erythropoietin-in-persons-living-with-HIV-in-Umuahia.pdf](https://doi.org/10.22192/ijcrms.2016.02.04.002).
88. Gavins FN, Stokes KY, editors. *Vascular responses to pathogens*. Academic Press; 2015.
89. Ifeanyi OE, Obeagu GU. The Values of CD4 Count, among HIV Positive Patients in FMC Owerri. *Int. J. Curr. Microbiol. App. Sci.* 2015;4(4):906-910.  
[https://www.academia.edu/download/38320134/Obeagu\\_Emanuel\\_Ifeanyi\\_and\\_Obeagu\\_Getrude\\_Uzoma.EMMA2.pdf](https://www.academia.edu/download/38320134/Obeagu_Emanuel_Ifeanyi_and_Obeagu_Getrude_Uzoma.EMMA2.pdf).
90. Obeagu EI, Okeke EI, Anonde Andrew C. Evaluation of haemoglobin and iron profile study among persons living with HIV in Umuahia, Abia state, Nigeria. *Int. J. Curr. Res. Biol. Med.* 2016;1(2):1-5.
91. Alum EU, Ugwu OP, Obeagu EI, Okon MB. Curtailing HIV/AIDS Spread: Impact of Religious Leaders. *Newport International Journal of Research in Medical Sciences (NIJRMS)*. 2023;3(2):28-31.
92. Obeagu EI, Obeagu GU, Paul-Chima UO. Stigma Associated With HIV. AIDS: A Review. *Newport International Journal of Public Health and Pharmacy (NIJPP)*. 2023;3(2):64-67.
93. Alum EU, Obeagu EI, Ugwu OP, Aja PM, Okon MB. HIV Infection and Cardiovascular diseases: The obnoxious Duos. *Newport International Journal of Research in Medical Sciences (NIJRMS)*. 2023;3(2):95-99.

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59

94. Ibebuike JE, Nwokike GI, Nwosu DC, Obeagu EI. A Retrospective Study on Human Immune Deficiency Virus among Pregnant Women Attending Antenatal Clinic in Imo State University Teaching Hospital. *International Journal of Medical Science and Dental Research*, 2018; 1 (2):08-14.  
<https://www.ijmsdr.org/published%20paper/li1i2/A%20Retrospective%20Study%20on%20Human%20Immune%20Deficiency%20Virus%20among%20Pregnant%20Women%20Attending%20Antenatal%20Clinic%20in%20Imo%20State%20University%20Teaching%20Hospital.pdf>.
95. Obeagu EI, Obarezi TN, Omeh YN, Okoro NK, Eze OB. Assessment of some haematological and biochemical parameters in HIV patients before receiving treatment in Aba, Abia State, Nigeria. *Res J Pharma Biol Chem Sci*. 2014; 5:825-830.
96. Obeagu EI, Obarezi TN, Ogbuabor BN, Anaebo QB, Eze GC. Pattern of total white blood cell and differential count values in HIV positive patients receiving treatment in Federal Teaching Hospital Abakaliki, Ebonyi State, Nigeria. *International Journal of Life Science, Biotechnology and Pharma Research*. 2014; 391:186-189.
97. Obeagu EI. A Review of Challenges and Coping Strategies Faced by HIV/AIDS Discordant Couples. *Madonna University journal of Medicine and Health Sciences*. 2023; 3 (1): 7-12.
98. Oloro OH, Obeagu EI. A Systematic Review on Some Coagulation Profile in HIV Infection. *International Journal of Innovative and Applied Research*. 2022;10(5):1-11.
99. Nwosu DC, Obeagu EI, Nkwuocha BC, Nwanna CA, Nwanjo HU, Amadike JN, Ezemima MC, Okpomeshine EA, Ozims SJ, Agu GC. Alterations in superoxide dismutase, vitamins C and E in HIV infected children in Umuahia, Abia state. *International Journal of Advanced Research in Biological Sciences*. 2015;2(11):268-271.
100. Obeagu EI, Malot S, Obeagu GU, Ugwu OP. HIV resistance in patients with Sickle Cell Anaemia. *Newport International Journal of Scientific and Experimental Sciences (NIJSES)*. 2023;3(2):56-59.
101. Ifeanyi OE, Uzoma OG, Stella EI, Chinedum OK, Abum SC. Vitamin D and insulin resistance in HIV sero positive individuals in Umudike. *Int. J. Curr. Res. Med. Sci*. 2018;4(2):104-108.
102. Ifeanyi OE, Leticia OI, Nwosu D, Chinedum OK. A Review on blood borne viral infections: universal precautions. *Int. J. Adv. Res. Biol. Sci*. 2018;5(6):60-66.
103. Nwovu AI, Ifeanyi OE, Uzoma OG, Nwebonyi NS. Occurrence of Some Blood Borne Viral Infection and Adherence to Universal Precautions among Laboratory Staff in Federal Teaching Hospital Abakaliki Ebonyi State. *Arch Blood Transfus Disord*. 2018;1(2).
104. Chinedu K, Takim AE, Obeagu EI, Chinazor UD, Eloghosa O, Ojong OE, Odunze U. HIV and TB co-infection among patients who used Directly Observed Treatment Short-course centres in Yenagoa, Nigeria. *IOSR J Pharm Biol Sci*. 2017;12(4):70-75.
105. Offie DC, Obeagu EI, Akueshi C, Njab JE, Ekanem EE, Dike PN, Oguh DN. Facilitators and barriers to retention in HIV care among HIV infected MSM attending Community Health Center Yaba, Lagos Nigeria. *Journal of Pharmaceutical Research International*. 2021;33(52B):10-19.

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59



106. Obeagu EI, Obeagu GU, Ede MO, Odo EO, Buhari HA. Translation of HIV/AIDS knowledge into behavior change among secondary school adolescents in Uganda: A review. *Medicine (Baltimore)*. 2023;102(49): e36599. doi: 10.1097/MD.00000000000036599. PMID: 38065920; PMCID: PMC10713174.
107. Anyiam AF, Arinze-Anyiam OC, Ironi EA, Obeagu EI. Distribution of ABO and rhesus blood grouping with HIV infection among blood donors in Ekiti State Nigeria. *Medicine (Baltimore)*. 2023;102(47): e36342. doi: 10.1097/MD.00000000000036342. PMID: 38013335; PMCID: PMC10681551.
108. Echefu SN, Udosen JE, Akwivu EC, Akpotuzor JO, Obeagu EI. Effect of Dolutegravir regimen against other regimens on some hematological parameters, CD4 count and viral load of people living with HIV infection in South Eastern Nigeria. *Medicine (Baltimore)*. 2023;102(47): e35910. doi: 10.1097/MD.00000000000035910. PMID: 38013350; PMCID: PMC10681510.
109. Opeyemi AA, Obeagu EI. Regulations of malaria in children with human immunodeficiency virus infection: A review. *Medicine (Baltimore)*. 2023;102(46): e36166. doi: 10.1097/MD.00000000000036166. PMID: 37986340; PMCID: PMC10659731.
110. Alum EU, Obeagu EI, Ugwu OPC, Samson AO, Adepoju AO, Amusa MO. Inclusion of nutritional counseling and mental health services in HIV/AIDS management: A paradigm shift. *Medicine (Baltimore)*. 2023;102(41): e35673. doi: 10.1097/MD.00000000000035673. PMID: 37832059; PMCID: PMC10578718.
111. Aizaz M, Abbas FA, Abbas A, Tabassum S, Obeagu EI. Alarming rise in HIV cases in Pakistan: Challenges and future recommendations at hand. *Health Sci Rep*. 2023;6(8): e1450. doi: 10.1002/hsr2.1450. PMID: 37520460; PMCID: PMC10375546.
112. Obeagu EI, Obeagu GU, Obiezu J, Ezeonwumelu C, Ogunnaya FU, Ngwoke AO, Emeka-Obi OR, Ugwu OP. Hematologic Support in HIV Patients: Blood Transfusion Strategies and Immunological Considerations. *APPLIED SCIENCES (NIJBAS)*. 2023;3(3).
113. Obeagu EI, Ubosi NI, Uzoma G. Storms and Struggles: Managing HIV Amid Natural Disasters. *Int. J. Curr. Res. Chem. Pharm. Sci*. 2023;10(11):14-25.
114. Obeagu EI, Obeagu GU. Human Immunodeficiency Virus and tuberculosis infection: A review of prevalence of associated factors. *Int. J. Adv. Multidiscip. Res*. 2023;10(10):56-62.
115. Obeagu EI, Malot S, Obeagu GU, Ugwu OP. HIV resistance in patients with Sickle Cell Anaemia. *Newport International Journal of Scientific and Experimental Sciences (NIJSES)*. 2023;3(2):56-9.
116. Alum EU, Ugwu OP, Obeagu EI, Aja PM, Okon MB, Uti DE. Reducing HIV Infection Rate in Women: A Catalyst to reducing HIV Infection pervasiveness in Africa. *International Journal of Innovative and Applied Research*. 2023;11(10):01-6.
117. Obeagu EI, Obeagu GU. Unmasking the Truth: Addressing Stigma in the Fight Against HIV. *Elite Journal of Public Health*. 2024;2(1):8-22.
118. Obeagu EI, Obeagu GU, Okwuanaso CB. Optimizing Immune Health in HIV Patients through Nutrition: A Review. *Elite Journal of Immunology*. 2024;2(1):14-33.

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59

119. Obeagu EI, Obeagu GU. Utilization of immunological ratios in HIV: Implications for monitoring and therapeutic strategies. *Medicine*. 2024;103(9):e37354.
120. Obeagu EI, Obeagu GU. CD8 Dynamics in HIV Infection: A Synoptic Review. *Elite Journal of Immunology*. 2024;2(1):1-3.
121. Obeagu EI, Obeagu GU. Implications of B Lymphocyte Dysfunction in HIV/AIDS. *Elite Journal of Immunology*. 2024;2(1):34-46.
122. Obeagu EI, Obeagu GU. Maternal Influence on Infant Immunological Responses to HIV: A Review. *Elite Journal of Laboratory Medicine*. 2024;2(1):46-58.
123. Obeagu EI, Obeagu GU. Understanding B Lymphocyte Functions in HIV Infection: Implications for Immune Dysfunction and Therapeutic Strategies. *Elite Journal of Medicine*. 2024;2(1):35-46.
124. Obeagu EI, Obeagu GU. Platelet-Driven Modulation of HIV: Unraveling Interactions and Implications. *Journal home page: <http://www.journalijar.com>;12(01)*.
125. Obeagu EI, Anyiam AF, Obeagu GU. Managing Hematological Complications in HIV: Erythropoietin Considerations. *Elite Journal of HIV*. 2024;2(1):65-78.
126. Obeagu EI, Obeagu GU, Hauwa BA, Umar AI. Hematocrit Variations in HIV Patients Co-infected with Malaria: A Comprehensive Review. *Journal home page: <http://www.journalijar.com>;12(01)*.
127. ObeaguEI AA, Obeagu GU. Synergistic Effects of Blood Transfusion and HIV in Children Under 5 Years with Severe Malaria: A Review. *Elite Journal of HIV*. 2024;2(1):31-50.
128. Obeagu EI, Anyiam AF, Obeagu GU. Unveiling B Cell Mediated Immunity in HIV Infection: Insights, Challenges, and Potential Therapeutic Avenues. *Elite Journal of HIV*. 2024;2(1):1-5.
129. Obeagu EI, Obeagu GU. Hematocrit Fluctuations in HIV Patients Co-infected with Malaria Parasites: A Comprehensive Review. *Int. J. Curr. Res. Med. Sci*. 2024;10(1):25-36.
130. Obeagu EI, Obeagu GU. Transfusion Therapy in HIV: Risk Mitigation and Benefits for Improved Patient Outcomes. *Sciences*. 2024;4(1):32-7.
131. Obeagu EI, Obeagu GU. Mental Health and Psychosocial Effects of natural disaster on HIV Patients. *Sciences*. 2024;4(1):38-44.
132. Obeagu EI, Obeagu GU. Eosinophil-Associated Changes in Neonatal Thymic T Regulatory Cell Populations in HIV-Infected Pregnancies. *Elite Journal of Health Science*. 2024;2(1):33-42.
133. Obeagu EI, Obeagu GU. Advances in Understanding the Impact of Blood Transfusion on Anemia Resolution in HIV-Positive Children with Severe Malaria: A Comprehensive Review. *Elite Journal of Haematology*. 2024;2(1):26-41.
134. Obeagu EI, Ayogu EE, Obeagu GU. Interactions between Blood Transfusion and Antiretroviral Medications: Implications for Patient Care. *Elite Journal of Medicine*. 2024;2(2):104-15.
135. Obeagu EI, Obeagu GU. Maternal Eosinophilic Responses in HIV-Positive Pregnant Women: Unraveling Immunological Dynamics for Improved Maternal-Fetal Health. *Elite Journal of Immunology*. 2024;2(1):47-64.

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59

136. Obeagu EI, Anyanwu CN, Obeagu GU. Challenges and Considerations in Managing Blood Transfusion for Individuals with HIV. *Elite Journal of HIV*. 2024;2(2):1-7.
137. Obeagu EI, Ubosi NI, Obeagu GU, Akram M. Early Infant Diagnosis: Key to Breaking the Chain of HIV Transmission. *Elite Journal of Public Health*. 2024;2(1):52-61.
138. Obeagu EI, Obeagu GU. Understanding Hematocrit Fluctuations in HIV-Malaria Coinfection for Improved Management. *Elite Journal of Public Health*. 2024;2(1):22-34.
139. Obeagu EI, Obeagu GU. The Impact of Erythropoietin on Preeclampsia in HIV-Positive Women: A Review. *Elite Journal of Nursing and Health Science*. 2024;2(1):21-31.
140. Obeagu EI, Obeagu GU. Platelet Distribution Width (PDW) as a Prognostic Marker for Anemia Severity in HIV Patients: A Comprehensive Review. *Journal home page*: <http://www.journalijar.com>;12(01).
141. Madzime M, Rossouw TM, Theron AJ, Anderson R, Steel HC. Interactions of HIV and antiretroviral therapy with neutrophils and platelets. *Frontiers in immunology*. 2021; 12:634386.
142. Khawaja AA, Taylor KA, Lovell AO, Nelson M, Gazzard B, Boffito M, Emerson M. HIV antivirals affect endothelial activation and endothelial-platelet crosstalk. *Circulation Research*. 2020;127(11):1365-1380.
143. Laurence J, Elhadad S, Ahamed J. HIV-associated cardiovascular disease: importance of platelet activation and cardiac fibrosis in the setting of specific antiretroviral therapies. *Open Heart*. 2018;5(2):e000823.
144. Akinosoglou K, Kolosaka M, Schinas G, Delastic AL, Antonopoulou S, Perperis A, Marangos M, Mouzaki A, Gogos C. Association of Antiretroviral Therapy with Platelet Function and Systemic Inflammatory Response in People Living with HIV: A Cross-Sectional Study. *Microorganisms*. 2023;11(4):958.
145. Reno TA, Tarnus L, Tracy R, Landay AL, Sereti I, Apetrei C, Pandrea I. The youngbloods. Get together. Hypercoagulation, complement, and NET formation in HIV/SIV pathogenesis. *Frontiers in Virology*. 2022; 1:795373.

**Citation:** Obeagu EI, Obeagu GU. Understanding Immune Cell Trafficking in Tuberculosis-HIV Coinfection: The Role of L-selectin Pathways. *Elite Journal of Immunology*, 2024; 2(2): 43-59