OFFICE OF THE DEAN

# Sri Lakshmi Narayana Institute of Medical Sciences

OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST,
PUDUCHERRY - 605 502.
[ Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME ( P -II ) dt. 11/07/2011 ]
[ Affliated to Bharath University, Chennai - TN ]

## Circular

07.03.2018

**Sub: Organising Value-added Course: Biochemical basis of Acquired immunodeficiency syndrome (AIDS). reg**

With reference to the above mentioned subject, it is to bring to your notice that Sri Lakshmi Narayana Institute of Medical Sciences, **Bharath Institute of Higher Education and Research** is organizing **"Biochemical basis of Acquired immunodeficiency syndrome (AIDS)"**. The course content and registration form is enclosed below."

The application must reach the institution along with all the necessary documents as mentioned. The hard copy of the application should be sent to the institution by registered/ speed post only so as to reach on or before October to November 2018. Applications received after the mentioned date shall not be entertained under any circumstances.

**Dean**

Encl: Copy of Course content

# VALUE ADDED COURSE

**1. Name of the programme & Code**

**Biochemical basis of Acquired immunodeficiency syndrome (AIDS)-Bio 08**

**2. Duration & Period**

30 hrs & November– December 20

**3. Information Brochure and Course Content of Value Added Courses**

*Enclosed as Annexure- I*

**4. List of students enrolled**

*Enclosed as Annexure- II*

**5. Assessment procedures:**

Assessment closed

**6. Certificate model**

*Enclosed as Annexure- IV*

**7. No. of times offered during the same year:**

1 time1 November– December 2018

**8. Year of discontinuation:** 2018

**9. Summary report of each program year-wise**

| **Value Added Course-** November – December 2018 | | | | | |
|---|---|---|---|---|---|
| **Sl. No** | **Course Code** | **Course Name** | **Resource Persons** | **Target Students** | **Strength & Year** |
| 1 | **BIO-08** | Biochemical basis of Acquired immunodeficiency syndrome (AIDS) | **Dr. Jansi Rani** | 1st year MBBS | 20 students NOV to DEC 2018) |

**10. Course Feed Back**

*Enclosed as Annexure- V*

**RESOURCE PERSON**

1. Dr.Jansi Rani
2. Dr. Kajalakshmy

**COORDINATOR**

Dr.Jansi Rani

PROFESSOR & HOD
DEPARTMENT OF BIOCHEMISTRY
Sri Lakshmi Narayana Institute Of Medical Sciences
PONDICHERRY 605 502

## Course Proposal

**Course Title: Biochemical basis of Acquired immunodeficiency syndrome (AIDS)**

**Course Objective:**

Bringing to the advance knowledge about HIV, present new research findings, and promote and enhance scientific and community collaborations around the world

Promoting HIV responses that are supported by and tailored to the needs of at risk populations or people living with HIV, including women and girls, men who have sex with men, transgender people, sex workers, young people, and people who use drugs

**Course Outcome:** To advance knowledge about HIV, present new research findings, and promote and enhance scientific and community collaborations

Course Audience: MBBS, AHS

Course Coordinator: Dr.Jansi Rani

Course Faculties with Qualification and Designation:

1. Dr.Jansi Rani, Professor & HOD

2. Dr.kajalakshmy, Assistant Professor

Course Curriculum/Topics with schedule (Min of 30 hours)

| Sl. No | Date | Topic | Time | Hours |
|---|---|---|---|---|
| 1. | 3-10-2018 | Indian and world: scenario 2025 | 1-2p.m | 1 hour |
| 2. | 4-10-2018 | Testing<br>a. HIV self testing<br>b. HIV testing services<br>c. Access to AIDS diagnosis | 4-6p.m | 2hour |
| 3. | 5-10-2018 | Testing<br>a. HIV self testing<br>b. HIV testing services<br>Access to AIDS diagnosis | 4-6p.m | 2hour |
| 4. | 6-10-2018 | Biochemical basis of AIDS<br>a. How HIV infects a cell<br>b. How HIV spread<br>c. A3G Deaminase – independent mechanism<br>d. A3G Deaminase –dependent mechanism | 4-6p.m | 2hour |
| 5. | 7-10-2018 | Biochemical basis of AIDS<br>a. How HIV infects a cell<br>b. How HIV spread<br>c. A3G Deaminase – independent mechanism | 4-6pm | 2hour |

| | | | | |
|---|---|---|---|---|
| | | d. A3G Deaminase –dependent mechanism | | |
| 6. | 10-10-2018 | Biochemical basis of AIDS<br>a. How HIV infects a cell<br>b. How HIV spread<br>c. A3G Deaminase – independent mechanism<br>d. A3G Deaminase –dependent mechanism | 4-6p.m | 2hour |
| 7. | 12-100-2018 | Transmission of HIV<br>a. Sexual transmission<br>b. Transmission through contaminated blood<br>c. Mother to child transmission | 4-6p.m | 2hour |
| 8. | 13-10-2018 | Transmission of HIV<br>a. Sexual transmission<br>b. Transmission through contaminated blood<br>c. Mother to child transmission | 1-2p.m<br>5-6p.m | 2hour |
| 9. | 14-10-2018 | Stages of HIV infection<br>a. Acute infection<br>b. Chronic infection | 4-6p.m | 2hour |
| 10 | 15-10-2018 | Mechanical basis of AIDS<br>a. Chemokine mediated activation<br>b. Cytokines<br>c. Altered transmitter systems (Arachidonic acid, Calcium ions, Glutamate, Nitric oxide and N-methyl D-aspartate receptor, )<br>d. Apoptosis | 4-6p.m | 2hour |
| 11 | 16-100-2018 | Mechanical basis of AIDS<br>a. Chemokine mediated activation<br>b. Cytokines<br>c. Altered transmitter systems (Arachidonic acid, Calcium ions, Glutamate, Nitric oxide and N-methyl D-aspartate receptor, )<br>d. Apoptosis | 4-6p.m | 2hour |
| 12 | 17-10-2018 | Mechanical basis of AIDS | 4-6p.m | 2hour |

| | | | | |
|---|---|---|---|---|
| | | a. Chemokine mediated activation<br>b. Cytokines<br>c. Altered transmitter systems (Arachidonic acid, Calcium ions, Glutamate, Nitric oxide and N-methyl D-aspartate receptor, )<br>d. Apoptosis | | |
| 13 | 18-100-2018 | Prevention of AIDS | 4-6p.m | 2hour |
| 14 | 19-10-2018 | Prevention of AIDS | 4-6p.m | 2hour |
| 15 | 20-10- 2018 | Treatment of AIDS | 4-6p.m | 2hour |
| 16 | 24-10-2018 | Treatment of AIDS | 4-6p.m | 2hour |
| | | **Total** | | 31 hrs |

**REFERENCE BOOKS:**


1. Primary Immunodeficiency Diseases: Definition, Diagnosis, and Management. Editors: Rezaei, Nima, Aghamohammadi, Asghar, Notarangelo, Luigi D. (Eds.).
2. Primary Immunodeficiency Diseases: A Molecular and Genetic Approach (3 ed.)

Edited by Hans D. Ochs, MD, Dr.med, C. I. Edvard Smith, PhD, and Jennifer M. Puck, MD

# Biochemical basis of Acquired immunodeficiency syndrome (AIDS)

## PARTICIPANT HAND BOOK

*Annexure- I*

BIHER

SLIMS

## COURSE DETAILS

| Particulars | Description |
|---|---|
| Course Title | **Biochemical basis of Acquired immunodeficiency syndrome (AIDS)** |
| Course Code | BIO |
| Topics and content of the course in the Hand book | 1. Indian and world: scenario 2025<br>2. Structure of HIV<br>Biochemical basis of AIDS<br>a. How HIV infects a cell<br>b. How HIV spread<br>c. A3G Deaminase –independent mechanism<br>d. A3G Deaminase –dependent mechanism<br>Transmission of HIV<br>a. Sexual transmission<br>b. Transmission through contaminated blood<br>c. Mother to child transmission<br>Mechanical basis of AIDS<br>a. Chemokine mediated activation<br>b. Cytokines<br>c. Altered transmitter systems (Arachidonic acid, |

| | |
|---|---|
| | Calcium ions, Glutamate, Nitric oxide and N-methyl D-aspartate receptor, )<br><br>Apoptosis<br><br>Prevention<br><br>Treatment |
| Advantages of learning and evaluation | Bringing to the advance knowledge about HIV, present new research findings, and promote and enhance scientific and community collaborations around the world |
| Further learning Opportunities | |
| Key Competencies | |
| Target Student | MBBS, AHS students |
| Duration | 30hrs Every Nov to Dec 2019 & May to June 2020 |
| Theory Session | 30hrs |
| Practical Session | 0hrs |
| Assessment Procedure | Assessment Evolution by MCQ |

**INTRODUCTION:**

The human immunodeficiency virus (HIV) is a retrovirus belonging to the family of lentiviruses. Retroviruses can use their RNA and host DNA to make viral DNA and are known for their long incubation periods. Like other retroviruses, HIV infects the body, has a long incubation period (clinical latency), and ultimately causes the signs and symptoms of disease, here AIDS. HIV causes severe damage to the immune system and eventually destroys it by using the DNA of CD4+ cells to replicate itself. In that process, the virus eventually destroys the CD4+ cells.

The Healthy Immune System The immune system protects the body by recognizing antigens on invading bacteria and viruses and reacting to them. An antigen is any substance that induces a state of sensitivity and immune responsiveness. These antigens interact with antibodies and immune cells, initiating an immune response. This process destroys the antigen, allowing the body to be free of infections. Types of antigens include bacteria, viruses, fungi, and parasites. When the immune system is weakened or destroyed by a virus such as HIV, the body is left vulnerable to infections.

B Lymphocytes The main function of B lymphocytes is humoral (antibody) immunity. Each B cell can recognize specific antigen targets and can secrete specific antibodies. Antibodies function by coating antigens, which makes the antigens more vulnerable to

phagocytosis (engulfing and ingestion of invading organisms by leukocytes and/ or macrophages), or by triggering the complement system, leading to an inflammatory response. Antibodies are highly specialized serum protein molecules. They are grouped into five classes, each having a specialized function: immunoglobulin G (IgG), IgA, IgM, IgE, and IgD

T Lymphocytes T lymphocytes have two major functions: regulation of the immune system and killing of cells that bear specific target antigens. Each T cell has a surface marker, such as CD4+, CD8+, and CD3+, that distinguishes it from other cells. CD4+ cells are helper cells that activate B cells, killer cells, and macrophages when a specific target antigen is present. There are two main types of CD8+ cells. The first type, cytotoxic CD8+ cells, kills cells infected by viruses or bacteria, as well as cancer cells. The second type of CD8+ cells, T-suppressor cells, inhibits or suppresses immune responses. Normal CD8+ cell count is between 300 and 1,000 cells in adults and children. The normal CD4+:CD8+ ratio is between 1.0 and 2.0. T cells can secrete cytokines (chemicals that kill cells), such as interferon. Cytokines can bind to target cells and activate the

inflammatory process. They also promote cell growth, activate phagocytes, and destroy target cells. Interleukins are cytokines that serve as messengers between white blood cells. Recombinant (laboratory synthesized) interleukins are currently being studied in clinical trials for patients with HIV infection.

Phagocytes Phagocytes include monocytes and macrophages, large white blood cells that engulf and digest cells carrying antigenic particles. Found throughout the body, phagocytes rid the body of worn-out cells, initiate the immune response by presenting antigens to lymphocytes, are important in immune response regulation and inflammation, and carry receptors for cytokines. Dendritic cells, another type of phagocyte, also are antigen-presenting cells. They have long, threadlike extensions that help trap lymphocytes and antigens and are found in the spleen and lymph nodes. Neutrophils are granulocytic phagocytes that are important in the inflammatory response. Complement The complement system consists of 25 proteins. Complement can induce an inflammatory response when it functions with antibodies to facilitate phagocytosis or weaken the

bacterial cell membrane. The complement proteins interact with one another in a sequential activation cascade, promoting the inflammatory process.

HIV's Structure HIV consists of a cylindrical center surrounded by a sphere-shaped lipid bilayer envelope. There are two major viral glycoproteins in this lipid bilayer, gp120 and gp41. The major function of these proteins is to mediate recognition of CD4+ cells and chemokine receptors, thereby enabling the virus to attach to and invade CD4+ cells. The inner sphere contains two single-stranded

**Classification of HIV**

The two human immunodeficiency viruses, HIV-1 and HIV-2, are members of the family of Retroviruses, in the genus of Lentiviruses. Retroviruses have been found in various vertebrate species, associated with a wide variety of diseases, in both animals and humans. In particular, retroviruses have been found to be associated with malignancies, autoimmune diseases, immunodeficiency syndromes, aplastic and haemolytic anaemias, bone and joint disease and diseases of the nervous system.[1]

The many different strains of HIV-1 have been separated into major (M), new (N) and outlier (O) groups, which may represent three separate zoonotic

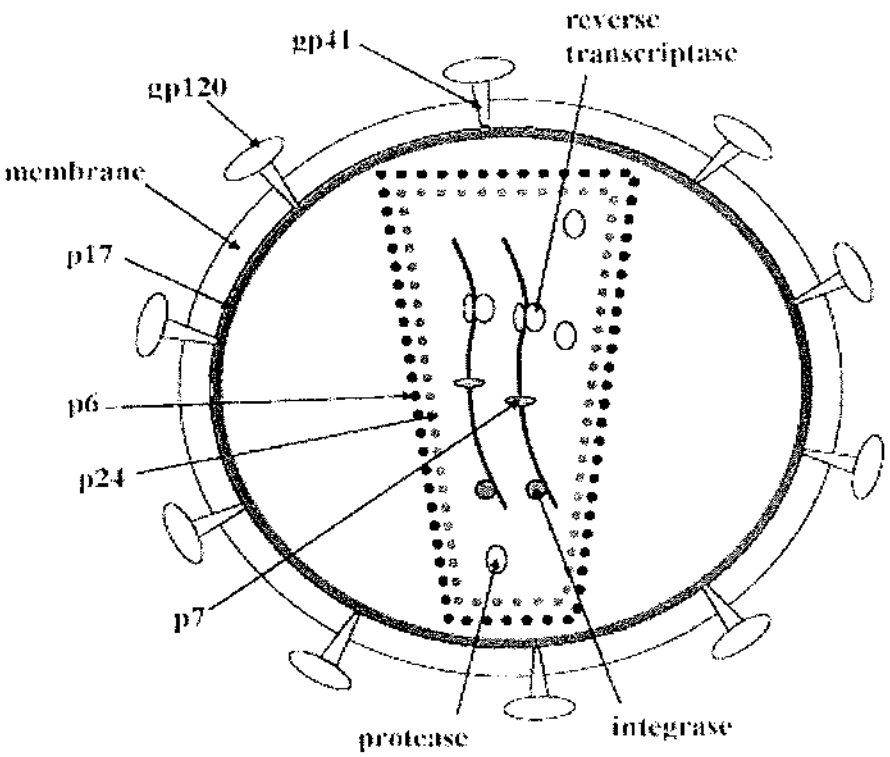
transfers from chimpanzees. Groups N and O are mainly confined to West and Central Africa (Gabon and Cameroon), though cases of Group O have been found world-wide due to international travel, after contact with infected individuals from these areas. The HIV strains in Group M are the ones mainly responsible for the HIV/AIDS pandemic, and they are so diverse that they have been subclassified into subtypes (or clades) A-K. This huge diversity of HIV-1 is important when diagnostic testing, treatment and monitoring are applied as the results may differ between different subtypes or clades (see **HIV Global Genetic Diversity and Epidemiology** below).[1] The diversity of HIV-2 is much less, but subtypes A-H have been proposed

HIV structure

The human immunodeficiency viruses are approximately 100 nm in diameter. It has a lipid envelope, in which are embedded the trimeric transmembrane glycoprotein gp41 to which the surface glycoprotein gp120 is attached (Box 1.1). These two viral proteins are responsible for attachment to the host cell and are encoded by the *env* gene of the viral RNA genome. Beneath the envelope, is the matrix protein p17, the core proteins p24 and p6 and the nucleocapsid protein p7 (bound to the RNA), all encoded by the viral *gag* gene. Within the viral core, lies 2 copies of the ~10 kilobase (kb) positive-sense, viral RNA genome (i.e. it has a diploid RNA genome), together with the protease, integrase and reverse transcriptase enzymes. These three enzymes are encoded by the

viral *pol* gene. There are several other proteins coded for by both HIV-1 and HIV-2, with various regulatory or immuno-modulatory functions, including *vif* (viral infectivity protein), *vpr* (viral protein R), *tat* (transactivator of transcription), *rev* (regulator of viral protein expression) and *nef* (negative regulatory factor). An additional protein found in HIV-1 but not HIV-2 is *vpu* (viral protein U). Similarly, *vpx* (viral protein X) is found in HIV-2 and not HIV-1.

**Box 1.1** Structure of the HIV-1 virus (adapted from reference 6). This figure is schematic and somewhat simplified for clarity. For example, the structures of the envelope glycoproteins gp120 and gp41 are actually trimers in reality, not the monomers as shown here.



## *Transmission of HIV*

HIV is considered to be a sexually transmitted infection (STI) because that is its most common mode of transmission. However, unlike some other pathogens that cause STIs, HIV is also commonly transmitted through nonsexual contact with HIV-contaminated blood and from HIV-infected mothers to their children.

### Sexual Transmission

The majority of all HIV transmissions worldwide occur through sexual contact. Of these cases, most are the result of heterosexual contact. However, the pattern of transmission varies geographically. In the United States, HIV is transmitted more often in men who have sex with men. The risk of transmission from anal intercourse is especially high, whereas the risk of transmission from oral sex is relatively low.

The risk of HIV transmission increases when people are already infected with other sexually transmitted infections, and especially when they have open sores on their genitals. In fact, the presence of genital sores increases the risk of transmission by about fivefold. The risk of transmission is also greater during the early months of infection when infected people usually have the greatest viral load.

### Transmission Through Contaminated Blood

The second most frequent mode of HIV transmission is via contaminated blood and blood products. Blood-borne transmission can occur through needle sharing during intravenous drug use, needle-stick injury in health professionals, transfusion of contaminated blood or blood products, or

medical injections with unsterilized equipment. Theoretically, giving or receiving tattoos or piercings can also transmit HIV, but no confirmed cases have been documented. It is not possible for mosquitoes or other blood sucking insects to transmit HIV.

In 2009 in the United States, intravenous drug users made up 12 percent of all new cases of HIV, and in some areas, more than 80 percent of people who injected drugs were infected with HIV. In rich nations, the risk of acquiring HIV from a blood transfusion is now virtually nil because of careful screening of blood donors and Blood products. In poor nations, on the other hand, screening is less rigorous; therefore, rates of transmission through contaminated blood are higher. Unsafe medical injections and invasive medical procedures are also a significant mode of transmission in poor nations, particularly in sub-Saharan Africa. While it is possible to acquire HIV from the infected organ or tissue transplantation, this is rare because of screening.

*Stages of HIV Infection*

HIV is a type of virus called a retrovirus. Retroviruses are single-stranded RNA viruses that live as parasites inside host cells. HIV primarily infects helper T cells (CD4+ T cells) as well as some other cells of the human immune system. It spreads from helper T cells to helper T cells and causes illness by killing off the helper T cells.

## Acute HIV Infection

After HIV enters the human body, there is a period of rapid viral replication, causing a high viral load in the person's blood and a drop in the number of circulating helper T cells. This stage of infection is called acute HIV infection. It produces an immune system response, in which the number of killer T cells increases. The killer T cells start killing HIV-infected cells, and antibodies to HIV are also produced. As a consequence, the viral load starts to decline, and the number of helper T cells recovers. However, the virus is not eliminated and remains in the body.

**Acute HIV infection**

may cause no noticeable symptoms, or it may cause a brief period of flu-like illness. The main symptoms of acute HIV infection are illustrated in the figure below. Even when symptoms are present, they are not often recognized as signs of HIV infectiondue to their nonspecific nature.

***Symptoms of HIV and AIDS***

When a person is first exposed to HIV, they may not show symptoms for several months or longer. Typically, however, they may experience a flu-like illness two to four weeks after becoming infected. People in this early stage of infection have a large amount of HIV in their blood and are very contagious, according to the Centers for Disease Control and Prevention (CDC).

This early illness is often followed by a "latency" phase, in which the virus is less active and no symptoms may be present, according to the U.S. Department of Health and Human Services (HHS). Although symptoms may be absent, people can still transmit HIV to others during this stage. This latent period can last a decade or more.

Left untreated, HIV infection will progress into AIDS, which severely damages the immune system. A weakened immune system makes it harder for the body to fight off other diseases, such as cancer, liver disease, cardiovascular disease and kidney disease, according to the CDC.

It can also make people more susceptible to opportunistic infections, which are infections that occur more frequently and severely in individuals with weakened immune systems. Infections may affect the brain, eyes, gastrointestinal tract, skin, mouth, lungs, liver and genitals, according to the University of California San Francisco Medical Center (UCSF).

According to the UCSF Medical Center, HIV and AIDS may cause the following symptoms:

- Rapid weight loss or "wasting."
- Extreme fatigue.
- Dry cough.
- Recurring fevers or profuse night sweats.
- Swollen lymph glands in the armpits, groin or neck.

- Prolonged diarrhea.
- Sores in the mouth or bleeding from the genitals or anus.
- Pneumonia.
- Blotches on or under the skin or inside the mouth, nose or eyelids.
- Depression, memory loss and other neurological effects.

***Diagnosis & tests***

The CDC recommends that everyone between the ages of 13 and 64 be tested for HIV at least once, and those at increased risk for infection be tested at least yearly.

According to the CDC, three types of tests can confirm an HIV infection:

A NAT, short for nucleic acid testing, looks for the actual human immunodeficiency virus in the blood. But this expensive test is rarely used for routine screening.

An antigen/antibody test looks for HIV antibodies, which are proteins produced by the immune system after exposure to bacteria or viruses. The blood test also detects HIV antigens — foreign substances that activate the immune system.

The third type is an antibody test that looks for HIV antibodies in blood or oral fluid. These tests can be done with a kit at home and provide results usually within 30 minutes.

However, it may take weeks or months after someone is first infected with HIV for the immune system to develop enough antibodies to the virus for those

proteins to be detectable in an HIV test. And the results of conventional HIV tests that are sent to a laboratory for analysis may take a week or more to be reported. Another rapid HIV test, which may involve swabbing a person's gums, is also available and offers results in about 20 minutes. A positive result on any HIV test should be confirmed with a second, follow-up test.

***Treatments & medications***

While AIDS remains incurable, patients are living much longer — even decades after infection — because of the development of medications to suppress the virus.

The most effective treatment is known as antiretroviral therapy (ART), which has typically been a combination of at least three medications meant to prevent the patient from becoming resistant to any one drug.

Modern medications for AIDS are more potent and less toxic than in the past, and people take fewer pills, less frequently, Wurcel told Live Science. In fact, most people on ART take only one pill a day, and the treatment is well tolerated with few side effects.

ART can help slow the spread of the virus and lower its amount in the blood, which is known as the "viral load." With daily treatment, that viral load may decrease so much that it becomes undetectable. A person with undetectable HIV

can't transmit the virus to their sex partners, even though HIV is still present in the person's body.

According to the National Institutes of Health, the most common antiretroviral drugs fall into three categories:

- Reverse transcriptase inhibitors, which keep the virus from reproducing.
- Protease inhibitors, which interrupt the replication of the virus at a later step in the virus life cycle.
- And, fusion inhibitors, which prevent the virus from entering and replicating in healthy cells.

Researchers are developing new treatments as alternatives to taking a daily pill, such as long-acting injectable HIV drugs given once a month or every few months, Wurcel said. In the future, there may be an implantable device placed under the skin to deliver ART, so people don't forget to take their medications, she said.

***Prevention***

More than 56,000 Americans become infected with HIV each year, according to HHS. Preventing infection means avoiding behaviors that lead to exposure to the virus.

Prevention measures include:

- Knowing your HIV status as well as your partner's.

- Using latex condoms correctly during every sexual encounter.
- Limiting the number of sexual partners.
- Abstaining from injectable drug use and never sharing needles or syringes.
- Seeking treatment immediately after suspected HIV exposure, since newer medications known as post-exposure prophylaxis (PEP) may prevent infection if started early.
- Reducing the chance of becoming infected by obtaining pre-exposure prophylaxis (PrEP), which is a daily pill taken by people at high risk for HIV because of their sexual behavior or from injecting drugs.

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

Department of Biochemistry – 2018-2019

| S.No | Register No. | Student List | Signature |
|---|---|---|---|
| 1 | U18MB393 | VARSHITHA .N | |
| 2 | U18MB385 | SWARNAB JANA | |
| 3 | U18MB360 | SAMIKSHA DUBEY | |
| 4 | U18MB400 | YASHWANTH NAIK R | |
| 5 | U18MB381 | SUHAIL AHMAD | |
| 6 | U18MB361 | SANJEEV KUMAR G.S | |
| 7 | U18MB386 | SWATHI .K | |
| 8 | U18MB389 | THENDRAL NILAVAN .M | |
| 9 | U18MB384 | SWAPNIL | |
| 10 | U18MB394 | VIKAASH .M | |
| 11 | U18MB388 | TECHI NADAM | |
| 12 | U18MB396 | VIKRANT SINGH | |
| 13 | U18MB382 | SUMAN KALYAN SAHOO | |
| 14 | U18MB390 | TINA CAROLINE J | |
| 15 | U18MB397 | VINITHA K.C | |
| 16 | U18MB387 | TADAR YAMING | |
| 17 | U18MB392 | VAISHNAVI TRIPATHI | |
| 18 | U18MB399 | WARADKAR ANJUSHA DEEPAK | |
| 19 | U18MB391 | URVASHI PAL | |
| 20 | U18MB383 | SUSMITA KHAN | |

PROFESSOR & HOD
DEPARTMENT OF BIOCHEMISTRY
Sri Lakshmi Narayana Institute Of Medical Sciences
PONDICHERRY

SRI LAKSHMI NARAYANA INSTITITE OF MEDICAL SCIECNES

Biochemical basis of AIDS

6/10

**Where did HIV originate?**

a. **A**A chimpanzee
b. **B**Mad cow disease
c. **C**A strain of the hepatitis virus
d. All of the above

1. **What is AIDS?**

**A.** A fungal infection
**B.** A rare blood cancer caused by HIV
**C.** A group of diseases caused by HIV
**D.** The final stage of HIV

**3. What are T cells?**

**A.**T cells are a type of white blood cell
**B.**T cells scan cells for abnormalities
**C.**T cells coordinate immune responses
**D.** All of the above

4. **Opportunistic infections are more frequent and more severe in people with HIV.**

**A.**True
**B.**False

**5. Which is not considered a common method of transmission for HIV?**

**A.** Blood

**B.** Genital secretions

**C.** Breast milk

**D.** Urine

**6. Which is not considered a common method of transmission for HIV?**

**A.** Blood

**B.** Genital secretions

**C.** Breast milk

**D.** Urine

**7. Is HIV manageable?**

**A.** No

**B.** Yes

8. Which is the second most common way of spreading HIV?

a) Sexual intercourse with HIV infected

b) Sharing needles

c) Sharing food

d) From infected mother to child

9. **The first ever instance of AIDS was reported in**

a. USA

b. France

c. Russia

d. None of the above

**10. HIV can also spread through**

a. Sharing water
b. Breathing in infected droplets
c. Sharing needles
d. Kissing

SRI LAKSHMI NARAYANA INSTITITE OF MEDICAL SCIECNES

Biochemical basis of AIDS

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d. Kissing

*Annexure- V*

# Course feedback form

**Course title:** Date :

Course code:

Department: BIOCHEMISTRY

| S.no | Design of the course | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | The objective of the course clear to you | | ✓ | | | |
| 2 | The course contents met with your expectations | | | ✓ | | |
| 3 | The lecture sequence were well planned | | ✓ | | | |
| 4 | The lectures were clear and easy to understand | ✓ | | | | |
| 5 | The audiovisual teaching aids were effectively used | | ✓ | | | |
| 6 | The instructor's encouraged interaction and was it helpful | | ✓ | | | |
| 7 | The contents were illustrated with examples | ✓ | | | | |
| 8 | Overall Rating of the course | | ✓ | | | |

*** Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2– Satisfactory; 1 - Not-Satisfactory**

Suggestions if any:

- Good -

Signature

# Sri Lakshmi Narayana Institute of Medical Sciences

## CERTIFICATE OF MERIT

This is to certify that SANJEEV KUMAR G.S has actively participated in the Value Added Course on **Biochemical basis of Acquired immunodeficiency syndrome (AIDS)** April– May 2018 -19 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr. Kajalakshmy
**RESOURCE PERSON**
DEPARTMENT OF BIOCHEMISTRY
Sri Lakshmi Narayana Institute Of Medical Sciences
PONDICHERRY - 605 502.

Dr. Jansi Rani
**COORDINATOR & HOD**
DEPARTMENT OF BIOCHEMISTRY

# Sri Lakshmi Narayana Institute of Medical Sciences

Affiliated to Bharath Institute of Higher Education & Research
Deemed to be University under section 3 of the UGC Act 1956

## CERTIFICATE OF MERIT

This is to certify that SONALI HESSA has actively participated in the Value Added Course on **Biochemical basis of Acquired immunodeficiency syndrome (AIDS)** April – May 2018-19 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr. Kajalakshmy
RESOURCE PERSON
DEPARTMENT OF BIOCHEMISTRY
Sri Lakshmi Narayana Institute Of Medical Sciences
PONDICHERRY - 605 502.

Dr. Jansi Rani
COORDINATOR

PROFESSOR & HOD
DEPARTMENT OF BIOCHEMISTRY
Sri Lakshmi Narayana Institute Of Medical Sciences
PONDICHERRY 605 502

*Annexure- V*

# Course feedback form

**Course title:** Date :

Course code:

Department: BIOCHEMISTRY

| S.no | Design of the course | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | The objective of the course clear to you | ✓ | | | | |
| 2 | The course contents met with your expectations | | ✓ | | | |
| 3 | The lecture sequence were well planned | | ✓ | | | |
| 4 | The lectures were clear and easy to understand | | ✓ | | | |
| 5 | The audiovisual teaching aids were effectively used | ✓ | | | | |
| 6 | The instructor's encouraged interaction and was it helpful | | ✓ | | | |
| 7 | The contents were illustrated with examples | | ✓ | | | |
| 8 | Overall Rating of the course | | ✓ | | | |

*** Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2– Satisfactory; 1 - Not-Satisfactory**

Suggestions if any:

Satisfactory

Signature

Date: 06.12.2018

From

Dr. Jansi Rani
Professor and Head,
Department of Biochemistry,
Sri Lakshmi Narayana Institute of Medical Sciences
Bharath Institute of Higher Education and Research,
Chennai.

Through Proper Channel

To

The Dean,
Sri Lakshmi Narayana Institute of Medical Sciences
Bharath Institute of Higher Education and Research,
Chennai.

**Sub: Completion of value-added course: Biochemical basis of Acquired immunodeficiency syndrome (AIDS)**

Dear Sir,

With reference to the subject mentioned above, the department has conducted the value-added course titled: **Biochemical basis of Acquired immunodeficiency syndrome (AIDS)**. We solicit your kind action to send certificates for the participants, that is attached with this letter. Also, I am attaching the photographs captured during the conduct of the course.

Kind Regards,

Dr. Jansi Rani

**Encl: Certificates**

**Photographs**

# Sri Lakshmi Narayana Institute of Medical Sciences

Date: 21-12-2017

From

Dr.Jansi Rani
Professor and Head,
Department of Biochemistry,
Sri Lakshmi Narayana Institute of Medical Sciences
Bharath Institute of Higher Education and Research,
Chennai.

To

The Dean,
Sri Lakshmi Narayana Institute of Medical College
Bharath Institute of Higher Education and Research,
Chennai.

**Sub: Permission to conduct value-added course: Biochemical basis of Acquired immunodeficiency syndrome (AIDS)**

Dear Sir,

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: **Biochemical basis of Acquired immunodeficiency syndrome (AIDS)** May to June 2018. We solicit your kind permission for the same.

Kind Regards

Dr.Jansi Rani

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**FOR THE USE OF DEANS OFFICE**

Names of Committee members for evaluating the course:

The Dean:

The HOD: (Dr. Jansi Rani)

The Expert: Dr. Kajalakshmy

The committee has discussed about the course and is approved.

| Dean | Subject Expert | HOD |
|---|---|---|
| (Sign & Sel) | (Sign & Seal) | (Sign & Seal) |

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