



UNIVERSITAS

SANATA DHARMA

LEMBAGA PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT

SURAT TUGAS

No. 031/LPPM USD/III/2023

Ketua Lembaga Penelitian dan Pengabdian Kepada Masyarakat Universitas Sanata Dharma Yogyakarta dengan ini memberikan tugas kepada:

Nama	: Dr. apt. Dewi Setyaningsih
Pekerjaan	: Dosen
NIP/NIDN	: P.1717 / '0520017401
Jabatan Fungsional	: Lektor
Program Studi	: Farmasi
Fakultas	: Farmasi
Status	: Anggota

Untuk melaksanakan kegiatan Pelatihan Pengukuran Tiroid dengan Metode ELISA pada:

Hari/Tanggal	: 27 Maret 2023
Waktu	: 07.00 WIB- Selesai
Tempat	: Laboratorium Analisa Pusat Fakultas Farmasi USD

Demikian Surat Tugas ini dibuat, agar yang berkepentingan melaksanakannya.

Yogyakarta, 24 Maret 2023
Lembaga Penelitian dan Pengabdian Kepada Masyarakat USD



Dr. Gabriel Fajar Sasmita Aji, M.Hum.
Ketua

Tembusan:

1. Wakil Rektor I
2. Dekan
3. Ketua Program Studi
4. Arsip



UNIVERSITAS SANATA DHARMA
LEMBAGA PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT

SERTIFIKAT

No : 042/ LPPM USD /V/ 2023

Lembaga Penelitian dan Pengabdian kepada Masyarakat Universitas Sanata Dharma memberikan penghargaan kepada :

Nama : *Dr. apt. Dewi Setyaningsih*
Jabatan/NIDN : *Dosen / '0520017401*
Unit Organisasi : *Universitas Sanata Dharma*

Atas perannya sebagai Instruktur dalam kegiatan pengabdian kepada Masyarakat Pelatihan Pengukuran Tiroid dengan Metode ELISA pada tanggal 26 - 27 Maret 2023 di Kampus III USD

Yogyakarta, 12 Mei 2023
Lembaga Penelitian dan Pengabdian Kepada Masyarakat
Universitas Sanata Dharma

Dr. Gabriel Fajar Sasmita Aji, M.Hum.
KETUA

Laporan Kegiatan Pengabdian Kepada Masyarakat

Pelatihan Pengukuran Tiroid dengan Metode ELISA



Pelaksana Pengabdian Kepada Masyarakat:

apt. Agustina Setiawati, Ph.D.

Dr. Jeffry Julianus

Dr. apt. Dewi Setyaningsih

Dr. apt. Dita Maria Virginia

Dr. apt. Rini Dwiastuti

Dr. Florentinus Dika Octa Riswanto, M.Sc.

apt. Phebe Hendra, Ph.D.

**FAKULTAS FARMASI
UNIVERSITAS SANATA DHARMA YOGYAKARTA
2023**

HALAMAN PENGESAHAN

- a Judul : Pelatihan Pengukuran Tiroid dengan Metode ELISA
- b Pelaku Pengabdian : apt. Agustina Setiawati, Ph.D.
Dr. Jeffry Julianus
Dr. apt. Dewi Setyaningsih
Dr. apt. Dita Maria Virginia
Dr. apt. Rini Dwiastuti
Dr. Florentinus Dika Octa Riswanto, M.Sc.
apt. Phebe Hendra, Ph.D.
- c Tempat kegiatan : Fakultas Farmasi USD
- d Waktu Kegiatan : Februari-Maret 2023
- e Besaran Dana Pengabdian : Rp 12.500.000,- (dua belas juta lima ratus ribu rupiah)
- Sumber USD : Rp 2.500.000,-
- Sumber lain : Rp 10.000.000,-
- f Sumber Dana Kegiatan : USD, PT Kairos Jaya Sejahtera

Yogyakarta, 30 Maret 2023

Mengetahui,
Dekan Fakultas Farmasi



(Dr. apt. Dewi Setyaningsih)

Ketua Pengabdian



(apt. Phebe Hendra, Ph.D.)

Menyetujui dan Mengesahkan,
Ketua LPPM



(Dr. Gabriel Pajar Sasmita Aji, M.Hum.)

Daftar Isi

- 1 Bukti Penugasan
 - 1.1. Surat Tugas dari Ketua LPPM
- 2 Bukti Pelaksanaan Kegiatan
 - 2.1. Laporan Kegiatan
 - 2.2. Bukti Pelaksanaan Kegiatan

Laporan Kegiatan

2.1. Pelaksanaan Kegiatan

Pada kegiatan ini dilakukan Pelatihan Pengukuran Tiroid dengan Metode ELISA, yang merupakan kolaborasi antara Fakultas Farmasi dengan PT Kairos Jaya Sejahtera. Pelatihan ini bertujuan untuk meningkatkan kemampuan intelektual dan mengembangkan kemampuan skill dalam menggunakan Elisa reader. Perencanaan kegiatan telah diawal pada awal Februari 2023 dan terlaksana dengan baik pada hari Kamis tanggal 27Maret 2023 jam 08.00. Kegiatan diikuti oleh 20 peserta, yang berasal dari dosen dan tenaga kependidikan Fakultas Farmasi USD serta pihak luar. Pelaksanaan pelatihan diawali dengan pembukaan dan dilanjutkan dengan pelatihan pengukuran.

Berikut merupakan materi kegiatan:

REFERENCES

1. Agharony JC. Clinical usefulness of ELISA technique in the assessment of thyroid function. *West Afr J Med* 1990;9(4):258-63.
2. Baumgartner Parzer SM, Wagner L, Rensing G, Sedl V, Nowodny P, Muller M, Brunner M, Wladthaus W. Increase by triiodothyronine of endothelin-1, fibronectin and von Willebrand factor in cultured endothelial cells. *J Endocrinol* 1997;154(2):219-5.
3. Maes M, Moremen K, Handricka D, Peeters D, Dikondt P, Ranjan R, De Meyer F, Schuerj S. Components of biological variation, including seasonality, in blood concentrations of TSH, TT3, TT4, FT4, FT3, cortisol and testosterone in healthy volunteers. *Clin Endocrinol (Oxf)* 1997; 46(5):587-98.
4. Santos F, Chaves L, Barakova L, Lapi P, Palla R, Panchi V, Volzetti F, Grasso L, Chopra U, Martino E, Pinchera A. Study of serum 3,5,3'-triiodothyronine sulfate concentration in patients with systemic non-thyroidal illness. *Eur J Endocrinol* 1996;134(1):45-9.

2018-07-11

Cat# T3379T (96 Tests)

Calbiotech Inc., 11035 Cordell Ct., El Cajon, CA 92020
Tel (619) 660-6162 | Fax (619) 660-6070 | Web www.calbiotech.com



Triiodothyronine (T3) ELISA

Catalog No. T3379T (96 tests)

INTENDED USE

The Triiodothyronine (T3) ELISA Kit is intended for the quantitative measurement of Triiodothyronine (T3) in human serum.

SUMMARY AND EXPLANATION

Triiodothyronine (T3) is a useful marker for the diagnosis of hypothyroidism and hyperthyroidism. The level of T3 is decreased in hypothyroid patients and is increased in hyperthyroid patients, graves disease and pregnancy.

PRINCIPLE OF THE TEST

The T3 is a solid phase competitive ELISA. The samples, assay buffer and T3 enzyme conjugate are added to the wells coated with anti-T3 monoclonal antibody. T3 in the patient's serum competes with a T3 enzyme conjugate for binding sites. Unbound T3 and T3 enzyme conjugate is washed off by washing buffer. Upon the addition of the substrate, the intensity of color is inversely proportional to the concentration of T3 in the samples. A standard curve is prepared relating color intensity to the concentration of the T3.

MATERIALS PROVIDED		96 tests
1. Microwell coated with T3 MAbs		12x6x1
2. T3 Standard: 6 vials (ready to use)		0.5 ml
3. T3 Assay Diluent		12 ml
4. TMB Substrate: 1 bottle (ready to use)		12 ml
5. Stop Solution: 1 bottle (ready to use)		12 ml
6. T3 Enzyme Conjugate concentrate, 110X: 1 vial		1.2 ml
7. 20X Wash concentrate: 1 bottle		25 ml

MATERIALS NOT PROVIDED

1. Distilled or deionized water
2. Precision pipettes
3. Disposable pipette tips
4. ELISA reader capable of reading absorbance at 450nm
5. Absorbance paper or paper towel
6. Graph paper

STORAGE AND STABILITY

1. Store the kit at 2 - 8° C.
2. Keep microwells sealed in a dry bag with desiccants.
3. The reagents are stable until expiration of the kit.
4. Do not expose test reagents to heat, sun, or strong light.

WARNINGS AND PRECAUTIONS

1. Potential biohazardous materials:
The calibrator and controls contain human source components, which have been tested and found non-reactive for hepatitis B surface antigen as well as HIV antibody with FDA licensed reagents. However, there is no test method that can offer complete assurance that HIV, Hepatitis B virus or other infectious agents are absent. These reagents should be handled at the Biosafety Level 2, as recommended in the Centers for Disease Control/National Institutes of Health manual, "Biosafety in Microbiological and Biomedical Laboratories" 1984.
2. This test kit USA FDA exempt product.
3. Do not pipette by mouth. Do not smoke, eat, or drink in the areas in which specimens or kit reagents are handled.
4. The components in this kit are intended for use as an integral unit. The components of different lots should not be mixed.
5. It is recommended that standards, control and serum samples be run in duplicate.
6. Optimal results will be obtained by strict adherence to this protocol. Accurate and precise pipetting, as well as following the exact time and temperature requirements prescribed are essential. Any deviation from this may yield invalid data.

SPECIMEN COLLECTION HANDLING

1. Collect blood specimens and separate the serum immediately.
2. Specimens may be stored refrigerated at (2-8° C) for 5 days. If storage time exceeds 5 days, store frozen at (-20° C) for up to one month.
3. Avoid multiple freeze-thaw cycles.
4. Prior to assay, frozen sera should be completely thawed and mixed well.
5. Do not use grossly lipemic specimens.

REAGENT PREPARATION

1. **T3-Enzyme Conjugate Solution**
Dilute the T3-enzyme conjugate 1:11 with conjugate buffer in a suitable container. For example, dilute 100µl of conjugate with 1.0ml of buffer for 16 wells (A slight excess of solution is made). This reagent should be used within twenty-four hours for maximum performance of the assay. Store at 2-8°C. General Formula:
Amount of Buffer required = Number of wells * 0.1
Quantity of T3-Enzyme necessary = # of wells * 0.01
i.e. = 16 x 0.1 = 1.6ml for Conjugate Buffer
16 x 0.01 = 0.16ml (160µl) for T3 enzyme conjugate
2. **Wash Buffer**
Prepare 1X Wash buffer by adding the contents of the bottle (25 ml, 20X) to 475 ml of distilled or deionized water. Store at room temperature (20-25°C).

ASSAY PROCEDURE

- Before proceeding with the assay, bring all reagents, serum references and controls to room temperature (20-25°C).
1. Format the microplate wells for each serum reference, control and patient specimen to be assayed in duplicate. Replace any unused microwell strips back into the aluminum bag, seal and store at 2-8°C.
 2. Pipette 50µl of the appropriate serum reference, control or specimen into the assigned well.
 3. Add 100µl of T3-enzyme conjugate solution to all wells (see Reagent Preparation Section).
 4. Swirl the microplate gently for 20-30 seconds to mix and cover.
 5. Incubate 60 minutes at room temperature.
 6. Remove liquid from all wells. Wash wells three times with 300 of 1X wash buffer (see Reagent Preparation Section). Blot on absorbent paper towels.
 7. Add 100µl of TMB substrate solution to all wells.
 8. Incubate at room temperature for fifteen (15) minutes.
 9. Add 50µl of stop solution to each well and gently mix for 15-20 seconds.
 10. Read the absorbance on ELISA Reader of each well at 450nm within 15 minutes after adding the stop solution.

CALCULATION OF RESULTS

The standard curve is constructed as follows:

1. Check T3 standard value on each standard vial. This value might vary from lot to lot. Make sure you check the value on every kit. See example of the standard attached.
2. To construct the standard curve, plot the absorbance for T3 standards (vertical axis) versus T3 standard concentrations (horizontal axis) on a linear graph paper. Draw the best curve through the points.

3. Read the absorbance for controls and each unknown sample from the curve. Record the value for each control or unknown sample.

Example of a Standard Curve

	OD 450 nm	Conc. ng/mL
Std 1	2.568	0
Std 2	1.706	0.75
Std 3	1.223	1.5
Std 4	0.611	3.5
Std 5	0.330	6
Std 6	0.186	9

LIMITATIONS OF THE TEST

1. The test results obtained using this kit serve only as an aid to diagnosis and should be interpreted in relation to the patient's history, physical findings and other diagnostic procedures.
2. Do not use sodium azide as preservative. Sodium azide inhibits HRP enzyme activities.

 Doing People Things in Great Ways	PT Kairo Jaya Sejahtera Gg. Tadabbur RT. 10 RW. 38 Tegahan Widyamartani Ngemplak Sleman DIY Telp/Fax: 0274-2839243 Customer Service: +62 888-0288-9888 Email: sales@kairos-jy.co.id Website: www.kairos-jy.co.id	T3225T
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LEMBAR KERJA PEMERIKSAAN ELISA
CALBIOTECH_Triiodothyronine (T3) ELISA_T3225T

Tanggal Pengujian : Waktu Dimulai Pengujian : Analisis :		* Berikan tanda T3225T di setiap lembar * Untuk pemeriksaan awal dan kontrol * Untuk hasil pengujian	
No	LANGKAH KERJA	DIKSIKSI	CEK LUS
1	PENGUMPULAN DAN PENANGANAN SAMPEL	Pisahkan serum dari spesimen darah sesegera mungkin Simpan Serum paling lama 5 hari pada suhu 2-8°C, atau -20°C jika lebih lama Hindari terjadinya kondisi multiple freezing (beku cair secara berulang) Sebelum pengujian sampel harus berada dalam kondisi tidak beku dan tercampur homogen Hindari serum lipemik dan berwarna keruh	
2	PENYESUAIAN SUHU	Sesuaikan suhu sampel, reagen dan kontrol pada suhu ruang	
3	PREPARASI REAGENT WASHING BUFFER 1X	Buat pengemulsi washing buffer, 1:20 dengan menambahkan DI water (ex: 10ml buffer + 180 ml DI Water)	
4	PREPARASI T3-ENZYME CONJUGATE SOLUTION	Larutkan T3-Enzyme Conjugate 1:11 dengan menggunakan conjugate buffer ex: 100ul + 1,0ml (T3-Enzyme Conjugate+Conjugate Buffer)	
5	PREPARASI MICROPLATE	Sistem microplate sesuai kebutuhan Simpan kembali microplate yang tidak digunakan kedalam kantong, tutup rapat-rapat	
6	SAMPLE DAN STANDAR	Masukan 50ul Sampel atau kontrol kedalam well	
7	T3-ENZYME CONJUGATE SOLUTION	Masukan 100 ul T3-Enzyme Conjugate Solution ke dalam semua well	
8	INKUBASI	Goyangkan perlahan, dan tutup dengan seal inkubasi selama 60 menit pada suhu ruang	
9	PENCUCIAN	Buang cairan dalam well, Cuci 3 kali, menggunakan 250-300ul washing buffer 1x, keringkan plate dengan menggetuskan pada kertas penyerap	
10	TMB SUBSTRATE	Masukan 100 ul TMB Substrate ke dalam semua well	
11	INKUBASI	Goyangkan perlahan, dan tutup dengan seal inkubasi selama 15 menit pada kondisi gelap	
12	STOP SOLUTION	Masukan 50 ul Stop Solution ke dalam semua well	
13	PEMBACAAN	Baca hasil pengujian menggunakan microplatereader 450nm Lakukan pembacaan kurang dari 15 menit setelah penambahan stop solution	

Analisis

Pemeriksaan

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Nomor Worksheet : 06/CalBio-T3225T/0223/Rev-00
Tanggal Terbit : 17 Februari 2023
Revisi Ke : 00
Aplikasi Protocol : Pada penggunaan Calbiotech T3225T Triiodothyronine (T3) ELISA Kit

2.2. Bukti Pelaksanaan Kegiatan



FAKULTAS FARMASI
UNIVERSITAS SANATA DHARMA
FACULTY OF PHARMACY
SANATA DHARMA UNIVERSITY

Akreditasi: Prodi S-1 Farmasi: A; Prodi Profesi Apoteker: A; Prodi S-2 Farmasi: B

PRESENSI PELATIHAN ELISA READER FAKULTAS FARMASI UNIVERSITAS SANATA DHARMA YOGYAKARTA

Hari, tanggal : Senin, 27 Maret 2023
Waktu : 08.00 WIB s/d selesai
Tempat : Lab. Analisa Pusat

NO	NAMA	TANDA TANGAN	
1.	Dr. apt. Dewi Setyaningsih	1.	
2.	Dr. apt. Dita Maria Virginia, S.Farm.		2.
3.	Dr. Jeffry Julianus, M.Si.	3.	
4.	Markus Suparlan		4.
5.	Yustinus Kunto Baskoro	5.	
6.	Suparjiman		6.
7.	Yohanes Wagiran	7.	
8.	Heru Purwanto		8.
9.	Iswandi	9.	
10.	Kayatno		10.
11.	Yohanes Sigit Ariyanto	11.	
12.	Agung Sinto Nugroho		12.
13.	Apollinaris Bima Windura	13.	
14.	Markus Aditya Bimo Putranto		14.
15.	Christine P	15.	
16.	Phoke H		16.
17.	Agustina Setrawati	17.	
18.	Binnery Utami D		18.
19.	Satri Sekti W.	19.	
20.	Agron		20.

Excellent in Quality, Competitiveness, and Care (e-QCC)

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