



HTRF Human TNF α Detection Kit

Part # 62HTNFAPET

Test size: 1 x 96 tests (62HTNFAPET) - assay volume: 20 μ L

Revision: #09 of September 2023

Store at: $\leq -16^{\circ}\text{C}$

This product is intended for research purposes only. The product is not intended to be used for therapeutic or diagnostic purposes.

ASSAY PRINCIPLE

Revvity's human TNF α assay is only intended for the quantitative measurement of TNF α in supernatant using HTRF[®] technology. The assay is compatible with human samples, and is highly specific for TNF α .

TNF α is detected in a sandwich assay format using 2 different specific antibodies, one labeled with Europium Cryptate (donor) and the second with d2 (acceptor).

The detection principle is based on HTRF[®] technology. When the labelled antibodies bind to the same antigen, the excitation of the donor with a light source (laser or flash lamp) triggers a Fluorescence Resonance Energy Transfer (FRET) towards the acceptor, which in turn fluoresces at a specific wavelength (665 nm). The two antibodies bind to the TNF α present in the sample, thereby generating FRET. Signal intensity is proportional to the number of antigen-antibody complexes formed and therefore to the TNF α concentration. (Fig. 1).

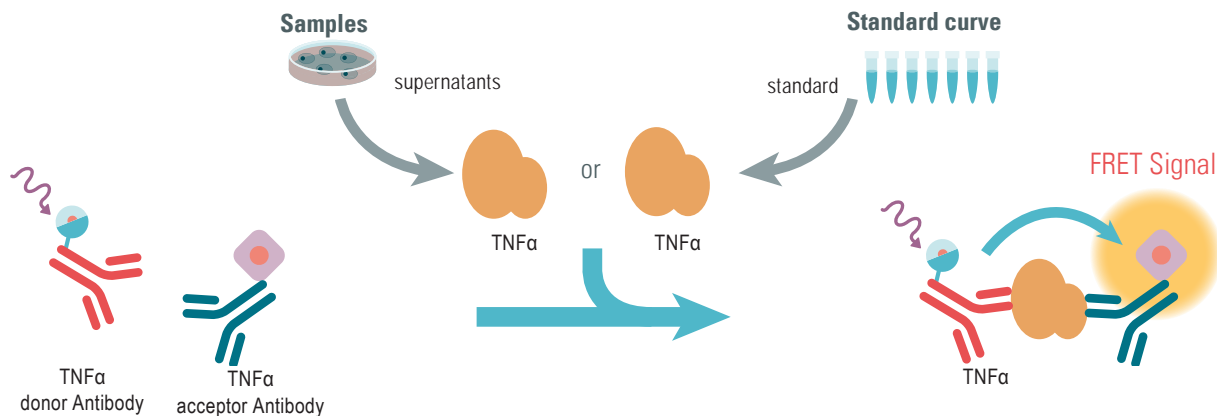
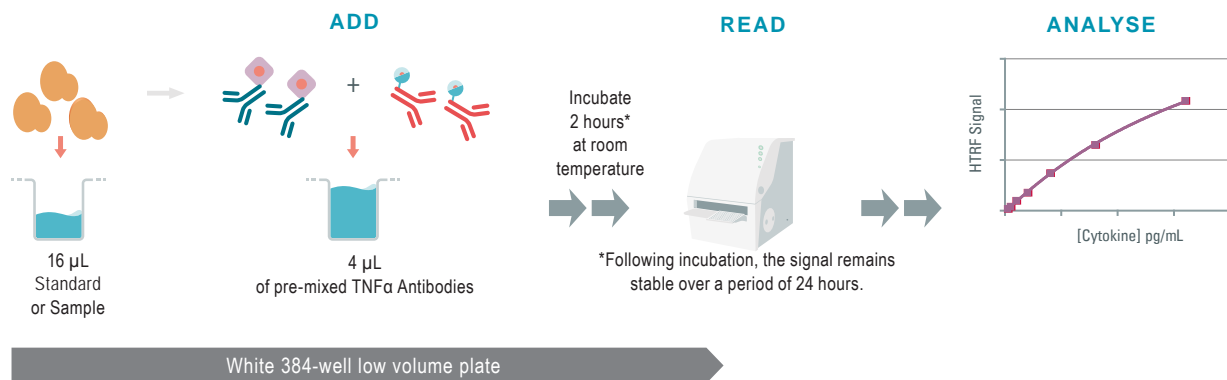


Figure 1: Principle of HTRF TNF α sandwich assay.

MANUAL AT A GLANCE



Make sure to use the set-up for Eu³⁺ Cryptate.
 For more information about set-up and compatible HTRF[®] readers,
 please visit our website at www.revvity.com

MATERIALS:

KIT COMPONENTS	1 X 96 TESTS - CAT # 62HTNFAPET
TNF α Standard Lyophilized	1 vial
TNF α Eu Cryptate Antibody Frozen	1 vial - 10 μ L
TNF α -d2 Antibody Frozen	1 vial - 10 μ L
Diluent* #5 5X	1 vial 2 mL
Detection Buffer** #3 ready-to-use	1 vial - 0.5 mL
Plate	1 plate HTRF 96-well low volume plate

* To prepare working standard solutions, culture medium can be an alternative the diluent.

** The Detection Buffer is used to prepare working solutions of acceptor and donor reagents.

FOR READING, AN HTRF®-CERTIFIED READER IS NEEDED.

For a list of HTRF-compatible readers and set-up recommendations, please visit www.revvy.com

PURCHASE SEPARATELY

96-well or 384-well small volume (SV) detection microplates - For more information about microplate recommendations, please visit our website at: www.revvy.com

STORAGE AND STABILITY

Store the kit at $\leq -16^{\circ}\text{C}$. Under proper storage conditions, reagents are stable until the expiry date indicated on the label.

Once reconstituted, standard stock solution may be frozen, and can be thawed only once..

Once thawed, antibody solutions can be frozen once.

To avoid freeze/thaw cycles, it is recommended to dispense remaining stock solutions into disposable plastic vials for storage at $\leq -60^{\circ}\text{C}$.

Volume of standard and antibody aliquots should not be under 10 μ L.




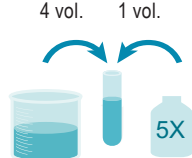
Thawed diluent and detection buffer can be stored at $2-8^{\circ}\text{C}$ on your premises.

REAGENT PREPARATION**BEFORE YOU BEGIN:**

- It is very important to prepare reagents in the specified buffers. The use of an incorrect diluent may affect reagent stability and assay results.
- Thaw the frozen reagents at room temperature.
- Before use, allow all kit's reagents to warm up at room temperature then
 - homogenize buffer and diluent with a vortex
 - centrifuge (NEVER vortex) the antibodies to gather all liquid at the bottom of the vial
- It is recommended to filter buffers before use.
- Antibody solutions must be prepared in individual vials and can be mixed prior to dispensing.



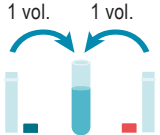
TAKE CARE TO PREPARE STOCK AND WORKING SOLUTIONS ACCORDING TO THE DIRECTIONS FOR THE KIT SIZE YOU HAVE PURCHASED.

TO PREPARE DILUENT, STANDARD & ANTIBODY STOCK SOLUTIONS:

1 X 96 TESTS	
TNF α Eu Cryptate antibody	
Thaw the TNF α Eu Cryptate antibody. Centrifuge. This stock solution can be frozen and stored at $\leq -60^{\circ}\text{C}$.	
TNF α d2 antibody	
Thaw the TNF α d2 antibody. Centrifuge. This stock solution can be frozen and stored at $\leq -60^{\circ}\text{C}$.	
TNF α Standard	
Reconstitute the TNF α standard with distilled water. Volume of reconstitution is indicated on the vial label. The reconstituted standard solution can be frozen and stored at -60°C or below.	
Diluent	
Dilute 5-fold the 5 X diluent #5 with distilled water: homogenize the 5 X diluent #5 with a vortex and add 1 volume of stock solution in 4 volumes of distilled water e.g. 1 mL of diluent + 4 mL of distilled water Mix gently after dilution.	

TO PREPARE WORKING ANTIBODY SOLUTIONS:

Each well requires 4 μL of pre-mixed TNF α antibodies. Prepare the two antibody solutions in separate vials.

1 X 96 TESTS	
TNF α Eu Cryptate antibody	
Dilute the stock solution (thawed reagent) of TNF α Eu Cryptate-antibody with detection buffer #3: Add 200 μL of detection buffer directly in the thawed Eu Cryptate-antibody stock solution.	
TNF α -d2 antibody	
Dilute the stock solution (thawed reagent) of TNF α d2 antibody with detection buffer #3: Add 200 μL of detection buffer directly in thawed d2 antibody stock solution.	
Antibody mix	
Pre-mix the two ready-to-use antibody solutions just prior to dispensing the reagents: e.g. 210 μL of d2 antibody + 210 μL of Eu Cryptate antibody.	

TO PREPARE WORKING STANDARD SOLUTIONS:

- Each well requires 16 μL of standard.
- Serially dilute the standard stock solution with with diluent #5. or with the cell culture medium used to prepare your samples supplemented with BSA or 10% FCS.
- **Due to the stability of the TNF α , it is mandatory to prepare the standard curve just before the assay.**
- In order to check for a potential interference effect from your own assay buffer when using the assay for the first time, we highly recommend the parallel preparation of a standard curve in your own supplemented cell culture medium and in diluent.
- In order to counteract any standard sticking we recommend changing tips between each dilution.

A recommended standard dilution procedure is listed and illustrated below:

1. Reconstitute the standard vial with the volume indicated on the vial label using distilled water.

2. Prepare the following dilutions:

- Dilute the reconstituted standard stock solution 3-fold with diluent or with cell culture medium.

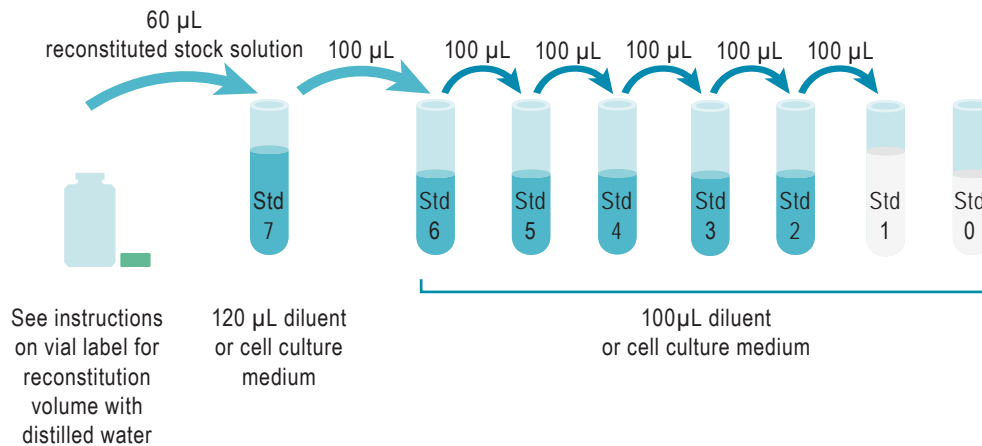
In practice: take 60 μL of stock solution and add it to 120 μL of diluent or cell culture medium. Mix gently. This yields the high standard (Std 7: 2500 pg/mL) for the top of the curve.

- Use the high standard (Std 7) to prepare the standard curve using serial dilutions as follows:

- Dispense 100 μL of diluent or cell culture medium into each vial from Std 6 to Std 0

- Add 100 μL of standard to 100 μL of diluent or cell culture medium, mix gently and repeat the serial dilution to make standard solutions: std6, std5, std4, std3, std2, std1

This will create 7 standards for the analyte. Std 0 (Negative control) is diluent or appropriate culture medium alone.



STANDARD	SERIAL DILUTIONS	WORKING SOLUTIONS
Standard Stock solution	Reconstitute the vial following the indications given on the vial label	7.5 ng/mL
Standard 7	60 μL reconstituted standard stock solution + 120 μL diluent	2500 pg/mL
Standard 6	100 μL Standard 7 + 100 μL diluent	1250 pg/mL
Standard 5	100 μL Standard 6 + 100 μL diluent	625 pg/mL
Standard 4	100 μL Standard 5 + 100 μL diluent	312.5 pg/mL
Standard 3	100 μL Standard 4 + 100 μL diluent	156.3 pg/mL
Standard 2	100 μL Standard 3 + 100 μL diluent	78.1 pg/mL
Standard 1	100 μL Standard 2 + 100 μL diluent	39.1 pg/mL
Standard 0	100 μL diluent	0

TO PREPARE SAMPLES:

- Each well requires 16 μL of sample.
- Just after their collection, put the samples at 4 $^{\circ}\text{C}$ and test them immediately. For later use, samples should be dispensed into disposable plastic vials and stored at $\leq -60^{\circ}\text{C}$. Avoid multiple freeze/thaw cycles.
- All samples with a concentration above the highest standard (Std 7) must be diluted in diluent #5 or in your cell culture medium.

1. Calculate the ratio of the acceptor and donor emission signals for each individual well.

$$\text{Ratio} = \frac{\text{Signal 665 nm}}{\text{Signal 620 nm}} \times 10^4$$

2. Calculate the delta ratio of the acceptor and donor emission signals for each individual well. The Standard 0 (Negative control) plays the role of an internal assay control.

$$\text{delta Ratio} = \text{Ratio Standard or sample} - \text{Ratio Standard 0}$$

3. Calculate the % CVs. The mean and standard deviation can then be worked out from ratio replicates.

$$\text{CV (\%)} = \frac{\text{Standard deviation}}{\text{Mean Ratio}} \times 100$$

For more information about data reduction, please visit www.revvy.com

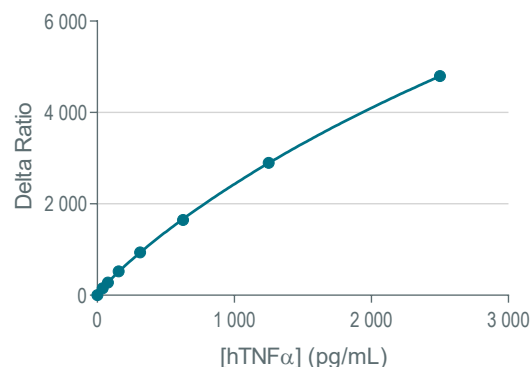
RESULTS

This data must not be substituted for the data obtained in the laboratory and should be considered only as an example. Results may vary from one HTRF® compatible reader to another.

Standard curve fitting with the 4 Parameter Logistic (4PL 1/y²)* model

* For more information about curve fitting please visit www.revvy.com

		Ratio (1)	delta R (2)	CV% (3)
Standard 0	Negative control	549	0	3%
Standard 1	39.1 pg/mL	701	152	3%
Standard 2	78.1 pg/mL	827	279	1%
Standard 3	156.3 pg/mL	1072	523	1%
Standard 4	312.5 pg/mL	1484	935	3%
Standard 5	625 pg/mL	2194	1646	1%
Standard 6	1250 pg/mL	3446	2897	0%
Standard 7	2500 pg/mL	5348	4799	2%



ANALYTICAL ASSAY PERFORMANCE

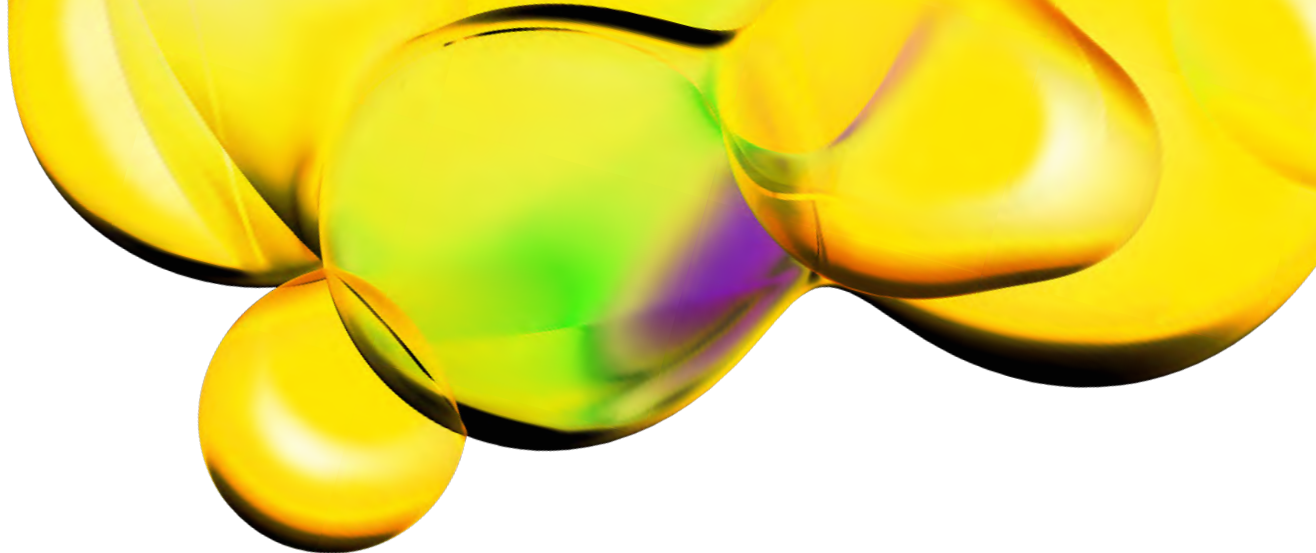
	Diluent	DMEM	RPMI
Assay range (pg/mL**)	29 pg/mL to 2500 pg/mL		
Limit of detection (LoD*) = Std 0 mean + 2 SD	5 pg/mL	17 pg/mL	11 pg/mL
Limit of quantification (LoQ*)	29 pg/mL		
Incubation time	at room temperature		

**NIBSC (12/154) value (IU/mL) = 0,1 x HTRF hTNFα value (pg/mL)

*the analytical sensitivity was calculated from data obtained with an HTRF compatible reader after 2 hours of incubation, this may vary from one HTRF compatible reader to another.

This product contains material of biologic origin. Use for research purposes only. Do not use in humans or for diagnostic purposes. The purchaser assumes all risk and responsibility concerning reception, handling and storage.

The use of the cell line will be done with appropriate safety and handling precautions to minimize health and environmental impact.



The information provided in this document is for reference purposes only and may not be all-inclusive. Revvity, Inc., its subsidiaries, and/or affiliates (collectively, "Revvity") do not assume liability for the accuracy or completeness of the information contained herein. Users should exercise caution when handling materials as they may present unknown hazards. Revvity shall not be liable for any damages or losses resulting from handling or contact with the product, as Revvity cannot control actual methods, volumes, or conditions of use. Users are responsible for ensuring the product's suitability for their specific application. REVVITY EXPRESSLY DISCLAIMS ALL WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, REGARDLESS OF WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED, ALLEGEDLY ARISING FROM ANY USAGE OF ANY TRADE OR ANY COURSE OF DEALING, IN CONNECTION WITH THE USE OF INFORMATION CONTAINED HEREIN OR THE PRODUCT ITSELF

Manufactured by Cisbio Bioassays - Parc Marcel Boiteux - 30200 Codolet - FRANCE

www.revvity.com

revvity

Revvity, Inc.
940 Winter Street
Waltham, MA 02451 USA
www.revvity.com

For a complete listing of our global offices, visit www.revvity.com
Copyright ©2023, Revvity, Inc. All rights reserved.