MANUAL

HTRF Human IL12/23 p40 Detection kit

Part # 62HIL12P40PEG & 62HIL12P40PEH

Test Size#: 500 tests (62HIL12P40PEG), 10,000 tests (62HIL12P40PEH)

Assay volume: 20 µL

Revision: #03 of June 2024 **Store at:** ≤-16°C

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

ASSAY PRINCIPLE

Revvity' human IL12/23 p40 assay is only intended for the quantitative measurement of IL12/23 p40 in supernatant using HTRF® technology. The assay is compatible with human samples only and is highly specific for p40, cross-reacting with all p40-containing cytokines such as IL12, IL23, p40 monomer and p40-p40 (p80) dimer.

IL12/23 p40 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 IL12/23 p40 present in the sample, thereby generating FRET. Signal intensity is proportional to the number of antigen-antibody complexes formed and therefore to the IL12/23 p40 concentration (Fig. 1).

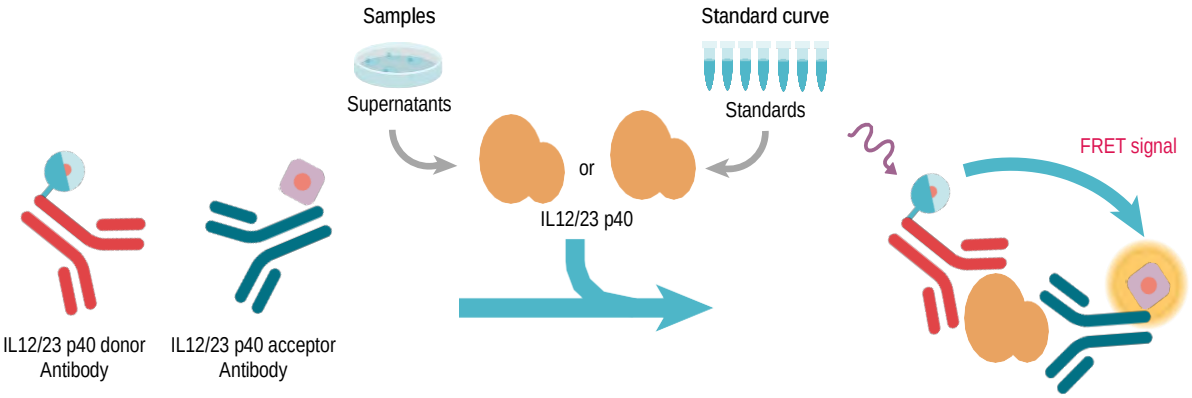
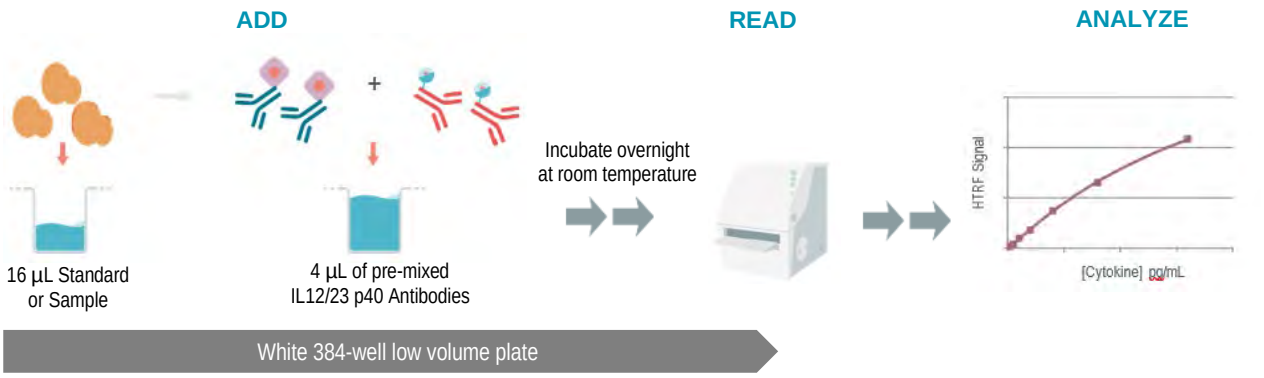


Figure 1. Principle of HTRF IL12/23 p40 sandwich assay

MANUAL AT A GLANCE



Make sure to use the set-up for Eu^{3+} Cryptate. For more information about set-up and compatible HTRF® readers, please visit our website at: www.revvity.com

MATERIALS

KIT COMPONENTS	500 TESTS CAT#62HIL12P40PEG	10,000 TESTS CAT#62HIL12P40PEH
IL 12/23 p40 Standard Lyophilized	2 vials	2 vials
IL 12/23 p40 Eu Cryptate Antobody Frozen 20X	1 vial 50 µL	1 vial 1 mL
IL 12/23 p40 d2 Antibody Frozen 20X	1 vial 50 µL	1 vial 1 mL
Diluent* #5 5X	1 vial 2 mL	1 vial 10 mL
Detection Buffer** #3 Ready-to-use	2 vials 1.5 mL	1 vial 50 mL

* 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.revvity.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.revvity.com

STORAGE AND STABILITY

KIT:

- Store the kit at ≤-16°C. Under appropriate storage conditions, reagents are stable until the expiry date

REAGENTS:

- 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 ≤-60°C.
- Volume of standard and antibody aliquots should not be under 10 µL.
- Thawed diluent and detection buffer can be stored at 2-8°C on your premises.

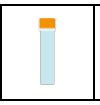
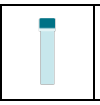
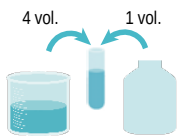
REAGENT PREPARATION

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
  - homogenise 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.

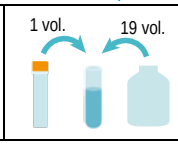
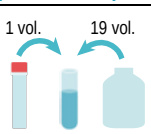
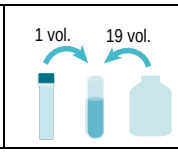
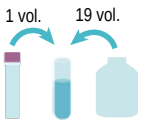
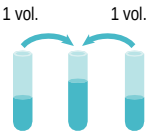
TAKE CARE TO PREPARE STOCK AND WORKING SOLUTIONS ACCORDING TO THE DIRECTIONS FOR THE KIT SIZE YOU HAVE PURCHASED.

TO PREPARE DILUENT, STANDARD & ANTIBODY STOCK SOLUTIONS:

500 TESTS		10,000 TESTS
IL12/23 p40 Eu Cryptate antibody		
Thaw the IL12/23 p40 Eu Cryptate antibody. Centrifuge. This 20X stock solution can be frozen and stored at ≤-60°C.		Thaw the IL12/23 p40 Eu Cryptate antibody. Centrifuge. This 20X stock solution can be frozen and stored at ≤-60°C.
IL12/23 p40 d2 antibody		
Thaw the IL12/23 p40 d2 antibody. Centrifuge. This 20X stock solution can be frozen and stored at ≤-60°C.		Thaw the IL12/23 p40 d2 antibody. Centrifuge. This 20X stock solution can be frozen and stored at ≤-60°C.
IL12/23 p40 Standard		
Reconstitute the IL12/23 p40 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.		Reconstitute the IL12/23 p40 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 5X diluent #5 with distilled water: Homogenize the 5X 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.		Dilute 5-fold the 5X diluent #5 with distilled water: Homogenize the 5X diluent #5 with a vortex and add 1 volume of stock solution in 4 volumes of distilled water e.g. 10 mL of diluent + 40 mL of distilled water Mix gently after dilution

TO PREPARE WORKING ANTIBODY SOLUTIONS:

Each well requires 4 µL of pre-mixed IL12/23 p40 antibodies. Prepare the two antibody solutions in separate vials

500 TESTS		10,000 TESTS	
IL12/23 p40 Eu Cryptate antibody			
Dilute 20-fold the 20 X stock solution (thawed reagent) of IL12/23 p40 Eu Cryptate antibody with detection buffer #3: e.g. 10 µL of thawed Eu Cryptate antibody stock solution + 190 µL of detection buffer.			Dilute 20-fold the 20 X stock solution (thawed reagent) of IL12/23 p40 Eu Cryptate antibody with detection buffer #3: e.g. 10 µL of thawed Eu Cryptate antibody stock solution + 190 µL of detection buffer).
IL12/23 p40 d2 antibody			
Dilute 20-fold the 20 X stock solution (thawed reagent) of IL12/23 p40 d2 antibody with detection buffer #3: e.g. 10 µL of thawed d2 antibody stock solution + 190 µL of detection buffer.			Dilute 20-fold the 20 X stock solution (thawed reagent) of IL12/23 p40 d2 antibody with detection buffer #3: e.g. 10 µL of thawed d2 antibody stock solution + 190 µL of detection buffer.
Antibody mix			
Pre-mix the two ready-to-use antibody solutions just prior to dispensing the reagents: e.g. 200 µL of d2 antibody + 200 µL of Eu Cryptate antibody			Pre-mix the two ready-to-use antibody solutions just prior to dispensing the reagents: e.g. 200 µL of d2 antibody + 200 µL of Eu Cryptate-antibody

TO PREPARE WORKING STANDARDS SOLUTIONS:

• Each well requires 16 µL of standard.

• Serially dilute the standard stock solution 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 IL12/23 p40, 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.

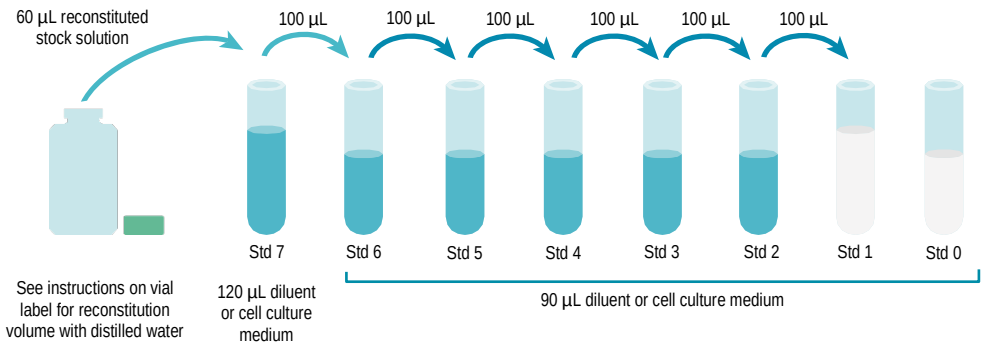
In practice: take 60 µL of stock solution and add it to 120 µL of diluent or cell culture medium. Mix gently. This yields the high standard (Std 7: 3000 pg/mL) for the top of the curve.

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

- Dispense 90 µL of diluent or cell culture medium into each vial from Std 6 to Std 0

- Add 100 µL of standard to 90 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	30000 pg/mL
Standard 7	60 µL reconstituted standard stock solution + 120 µL diluent	10000 pg/mL
Standard 6	100 µL Standard 7 + 90 µL diluent	5263 pg/mL
Standard 5	100 µL Standard 6 + 90 µL diluent	2770 pg/mL
Standard 4	100 µL Standard 5 + 90 µL diluent	1458 pg/mL
Standard 3	100 µL Standard 4 + 90 µL diluent	767 pg/mL
Standard 2	100 µL Standard 3 + 90 µL diluent	404 pg/mL
Standard 1	100 µL Standard 2 + 90 µL diluent	213 pg/mL
Standard 0	90 µL diluent	0

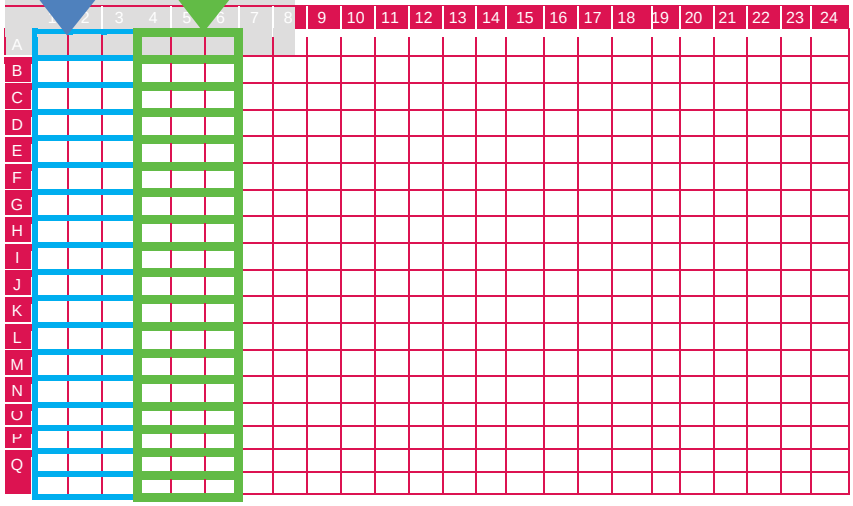
TO PREPARE SAMPLES

- Each well requires 16 µL of sample.
- Just after their collection, store the samples at 4°C and test them immediately. For later use, samples should be dispensed into disposable plastic vials and stored at ≤-60°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.

ASSAY MANUAL

	STANDARD (STD 0 - STD 7)	SAMPLES
Step 1	Dispense 16 µL of each IL12/23 p40 standard (Std 0 - Std 7) into each standard well.	Dispense 16 µL of each sample into each sample well.
Step 2	Dispense 4 µL of pre-mixed IL12/23 p40 antibodies working solution into all wells.	
Step 3	Seal the plate and incubate overnight at room temperature.	
Step 4	Remove the plate sealer and read on an HTRF® compatible reader.	

	1	2	3	4	5	6
A	16 µL Std 0 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well A1	Repeat Well A1	16 µL sample 1 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well A4	Repeat Well A4
B	16 µL Std 1 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well B1	Repeat Well B1	16 µL sample 2 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well B4	Repeat Well B4
C	16 µL Std 2 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well C1	Repeat Well C1	16 µL sample 3 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well C4	Repeat Well C4
D	16 µL Std 3 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well D1	Repeat Well D1	16 µL sample ... 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well D4	Repeat Well D4
E	16 µL Std 4 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well E1	Repeat Well E1	16 µL sample ... 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well E4	Repeat Well E4
F	16 µL Std 5 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well F1	Repeat Well F1	16 µL sample ... 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well F4	Repeat Well F4
G	16 µL Std 6 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well G1	Repeat Well G1	16 µL sample ... 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well G4	Repeat Well G4
H	16 µL Std 7 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well H1	Repeat Well H1	16 µL sample ... 4 µL pre-mixed IL12/23 p40 antibodies	Repeat Well H4	Repeat Well H4



DATA REDUCTION & INTERPRETATION

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.

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

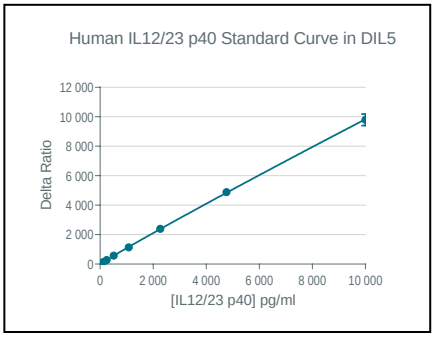
For more information about data reduction, please visit www.revvity.com

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.revvity.com)

		Ratio (1)	delta R (2)	CV% (3)
Standard 0	Negative control	417	0	1%
Standard 1	213 pg/mL	555	138	3%
Standard 2	404 pg/mL	693	276	4%
Standard 3	767 pg/mL	997	579	4%
Standard 4	1458 pg/mL	1557	1139	5%
Standard 5	2770 pg/mL	2813	2396	2%
Standard 6	5263 pg/mL	5301	4883	4%
Standard 7	10000 pg/mL	10207	9790	4%

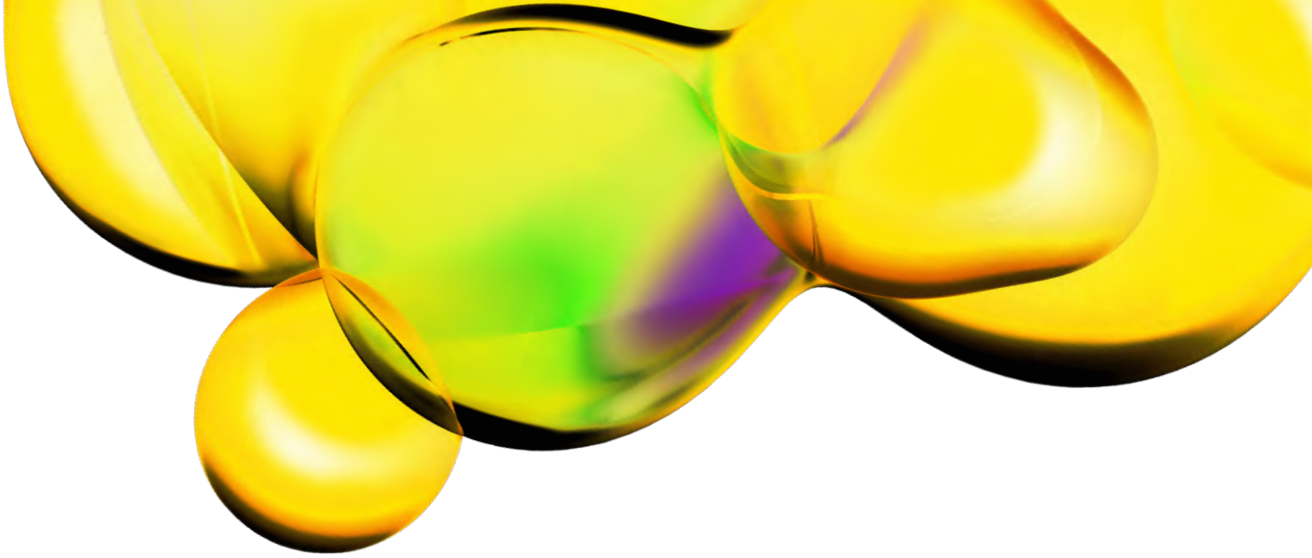


ANALYTICAL ASSAY PERFORMANCE

	Diluent	DMEM	RPMI
Assay range (pg/mL**)	71 pg/mL to 10000 pg/mL		
Limit of detection (LoD*) = Std 0 mean + 2 SD	15 pg/mL	56 pg/mL	55 pg/mL
Limit of quantification (LoQ*)	71 pg/mL	96 pg/mL	109 pg/mL
Incubation time	overnight at room temperature		

**NIBSC (95/544) value (IU/mL) = 0,01 x HTRF hIL12/23 p40 value (pg/mL). Note that this NIBSC I.S. equivalence is given is for IL12p70 as there is no I.S. for p40.
*The analytical sensitivity was calculated from data obtained with an HTRF compatible reader after overnight 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 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, 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.