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Data Sheet

Acetyl-Coenzyme A Carboxylase 1 (ACC1) Assay Kit

Catalog # 79315

DESCRIPTION: Acetyl-Coenzyme A Carboxylase (ACC) plays an important role in fatty acid metabolism so it has been proposed to be a drug target for the fatty acid-related metabolic diseases including obesity and diabetes. The *Acetyl-Coenzyme A Carboxylase 1 (Human ACC1) assay kit* is designed to measure ACC1 activity for screening and profiling applications using ADP-Glo™ reagents as a detection reagent. The *Acetyl-coenzyme A carboxylase 1 (ACC1) assay kit* comes in a convenient 96-well format, with enough purified recombinant ACC1 enzyme, ACC1 substrate, ATP and ACC assay buffer for 100 enzyme reactions.

COMPONENTS:

Catalog #	Reagent	Amount	Storage	
50202	ACC1 (Human)	10 µg	-80°C	Avoid multiple freeze/thaw cycles!
79283	5x ACC assay buffer	1 ml	-20°C	
79686	ATP (500 µM)	100 µl	-20°C	
	Acetyl-CoA (2 mM)	25 µl	-20°C	
	Sodium Bicarbonate (1 M)	75 µl	-20°C.	
79696	96-well plate, white	1	Room Temp.	

MATERIALS OR INSTRUMENTS REQUIRED BUT NOT SUPPLIED:

ADP-Glo™ Kinase Assay (Promega #V6930)
Microplate reader capable of reading luminescence
Adjustable micropipettor and sterile tips

APPLICATIONS: Useful for studying enzyme kinetics and screening small molecular inhibitors for drug discovery and HTS applications.

STABILITY: Up to 6 months when stored as recommended.

REFERENCE: Ting, L. *J. Cell. Biochem.* **99(6):**1476-1488 (2006)

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ASSAY PROTOCOL:

All samples and controls should be tested in duplicate.

- 1) Thaw 5x ACC assay buffer, ATP and Acetyl-CoA and Sodium Bicarbonate.
- 2) Prepare the master mixture (15 μ l per well): N wells x (3.5 μ l 5x ACC assay buffer + 1 μ l ATP (500 μ M) + 0.25 μ l Acetyl-CoA + 0.75 μ l Sodium Bicarbonate + 9.5 μ l water). Add 15 μ l to every well except the Blank well.
- 3) For the Blank well, prepare 'no substrate master mix' (15 μ l per well): N wells x (3.5 μ l 5x ACC assay buffer + 1 μ l ATP (500 μ M) + 10.5 μ l water). Add 15 μ l to the Blank well. (Alternatively, 'master mix + no ACC1' can be used as a Blank well)

	Positive Control	Test Inhibitor	Blank (no substrate)	Blank (no ACC1)
5x ACC assay buffer	3.5 μ l	3.5 μ l	3.5 μ l	3.5 μ l
ATP (500 μ M)	1 μ l	1 μ l	1 μ l	1 μ l
Acetyl-CoA (2 mM)	0.25 μ l	0.25 μ l	-	0.25 μ l
Sodium Bicarbonate (1 M)	0.75 μ l	0.75 μ l	-	0.75 μ l
Water	9.5 μ l	9.5 μ l	10.5 μ l	9.5 μ l
Test Inhibitor	-	2.5 μ l	-	-
Inhibitor Diluent (no inhibitor)	2.5 μ l	-	2.5 μ l	2.5 μ l
1x ACC buffer	-	-	-	7.5 μ l
ACC1 (~11 ng/ μ l)	7.5 μ l	7.5 μ l	7.5 μ l	-
Total	25 μl	25 μl	25 μl	25 μl

- 4) Add 2.5 μ l of Inhibitor solution of each well labeled as "Test Inhibitor". For the "Positive Control" and "Blank", add 2.5 μ l of the same solution without inhibitor (Inhibitor Diluent; e.g. 10% DMSO (aqueous) is recommended for inhibitor diluent, resulting in 1% DMSO at final concentration)
- 5) Prepare 2 ml of 1x ACC assay buffer by mixing 400 μ l of 5x ACC assay buffer with 1600 μ l water. 2 ml of 1x Kinase assay buffer is sufficient for 100 reactions.
- 6) To the wells designated as "Blank (no ACC1)", add 7.5 μ l of 1x ACC assay buffer.

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- 7) Thaw ACC1 enzyme on ice. Upon first thaw, briefly spin tube containing enzyme to recover full content of the tube. Calculate the amount of ACC1 required for the assay and dilute enzyme to ~11 ng/μl with 1x ACC assay buffer. Store remaining undiluted enzyme in aliquots at -80°C. *Note: ACC1 enzyme is sensitive to freeze/thaw cycles. Avoid multiple freeze/thaw cycles. Do not re-use thawed aliquots or diluted enzyme.*
- 8) Initiate reaction by adding 7.5 μl of diluted ACC1 enzyme to the wells designated "Positive Control", "Test Inhibitor Control" and "Blank (no substrate)". Incubate at room temperature for 40 minutes.
- 9) Thaw ADP-Glo reagent (Promega).
- 10) After the 40 minutes reaction, add 25 μl of ADP-Glo reagent to each well. Cover plate and incubate at room temperature for 45 minutes.
- 11) Thaw Kinase Detection reagent (Promega).
- 12) After 45 min incubation with ADP-Glo reagent, add 50 μl of Kinase-Detection reagent to each well. Cover plate with aluminum foil and incubate at room temperature for 45 ~ 90 minutes
- 13) Measure luminescence using the microplate reader.

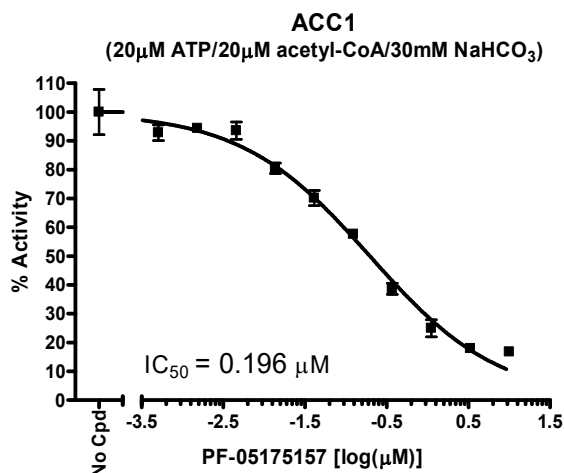
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Example of Assay Results:



Inhibition of ACC1 enzyme by PF-05175157, measured using the *Acetyl-Coenzyme A Carboxylase 1 (ACC1) assay kit* (Cat. #79315). *Data shown is lot-specific. For lot-specific information, please contact BPS Bioscience, Inc. at info@bpsbioscience.com*

RELATED PRODUCTS:

<u>Product Name</u>	<u>Catalog #</u>	<u>Size</u>
ACC1, His-tag	50200	10 μ g
ACC1, FLAG-His-tags	50202	10 μ g
ACC2, His-tag	50201	10 μ g
ACC2, His-tag, Strep-tag	50203	10 μ g
ACC2 Assay Kit	79282	96 rxns.
ND-630	27071-1	1 mg
ND-630	27071-2	5 mg

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