

Neutrophil Research Tools



Neutrophils play a critical role in the engulfment and destruction of invasive pathogenic microorganisms. One means by which they do this is to extrude web-like neutrophil extracellular traps (NETs) in response to infectious challenge. NETs are composed of DNA histones and multiple antimicrobial agents (e.g., myeloperoxidase (MPO), elastase, defensins, etc.). Cayman has developed several tools to study the process of NETosis as well as neutrophil function, activation, and isolation.

NET Quantification Assays

NETosis Assay Kit

Item No. 601010

- Measures elastase released from stimulated neutrophils
- Compatible with any NET-producing cells. Isolate and collect mouse neutrophils using our **Neutrophil (mouse) Isolation Kit**
- Use with our **NETosis Screening Set** to evaluate NET production *in vitro*

Citrullinated Histone H3 (Clone 11D3) ELISA Kit - Item No. 501620

- Detects CitH3, a hallmark of NETosis produced almost exclusively during NET formation
- Validated in mouse bone marrow leukocytes and serum as well as human plasma and serum

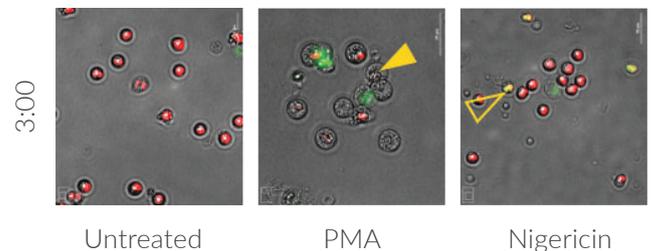


Determine which NET assay is right for your experiment at www.caymanchem.com/quantifynets

NETosis Imaging Assay Kit

Item No. 601750

- Visualize and quantify NET formation over time *ex vivo* and *in vitro*
- Cell-permeable red DNA stain captures dynamic changes to nucleus
- Cell-impermeable green stain detects extruded DNA
- Includes reagents for enrichment of neutrophils from human blood, staining of cells, and induction of NETosis

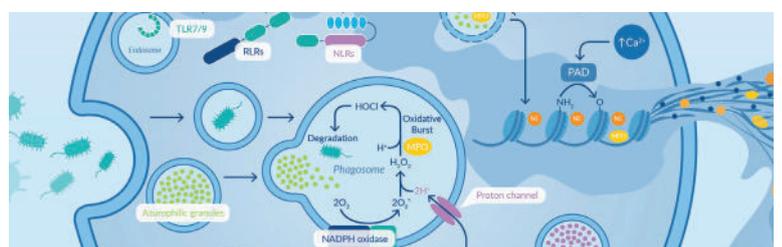


Watch NET formation with time-lapse imaging of neutrophils at www.caymanchem.com/imagenets

Explore neutrophil defense mechanisms and roles in inflammation in our

Neutrophil Biology Wall Poster

Download the poster at www.caymanchem.com/neutrophilposter



NET Formation: PAD-mediated Citrullination

A critical step in the formation of NETs is the hypercitrullination of histones by the nuclear enzyme peptidylarginine deiminase 4 (PAD4). This modification allows the dissociation of tightly packaged DNA from the core histone octamer.

Item No.	Product Name	Summary
17079	BB-Cl-Amidine	Inhibits NET formation without altering H ₂ O ₂ production by neutrophils
33581	BMS-P5	Inhibits histone H3 citrullination
13781	Histone H3 Polyclonal Antibody	Detect histone H3 in ELISA, FC, IP, and WB applications
17855	Histone H3 (Citrullinated R2 + R8 + R17) Polyclonal Antibody	Detect citrullinated histone H3 in ELISA and WB applications
17488	GSK484 (hydrochloride)	Blocks citrullination of PAD4 target proteins and inhibits NET formation
10500	PAD4 (human, recombinant)	Active recombinant enzyme for functional studies
501460	PAD4 (human) ELISA Kit	Detect human PAD4 in tissue culture medium, cell lysates, plasma, and serum
700560	PAD4 Inhibitor Screening Assay Kit (Ammonia)	Identify inhibitors of PAD activity by ammonia detection
19669	PAD4 Monoclonal Antibody (Clone 6D8)	Detect PAD4 by ELISA or WB

View a complete list of research tools to study citrullination at www.caymanchem.com

NET-associated Pathology

Failure to clear citrullinated proteins and NET components can result in the production of autoantibodies. Cayman's **PAD4 Autoantibody ELISA Kit** can be used to measure anti-PAD4 autoantibodies in human plasma and serum.

NET Formation Screening & Analysis Services

With expertise in high-content imaging, enzymatic detection, and citrullination/carbamylation, our Services team is here to help.

www.caymanchem.com/bioanalysis

Neutrophil Function

Tools to study neutrophil function, from release and activity of defensive enzymes to respiratory burst.

Item No.	Product Name	Summary
601370	<i>E. coli</i> Phagocytosis Assay Kit	Detect phagocytosis of FITC-labeled, heat-inactivated <i>E. coli</i> bacteria
10006438	Myeloperoxidase Chlorination Fluorometric Assay Kit	Measure MPO chlorination activity
501410	Myeloperoxidase (human) ELISA Kit	Detect human MPO released by neutrophils after various experimental conditions
700170	Myeloperoxidase Inhibitor Screening Assay Kit	Screen for inhibitors of MPO
600610	Neutrophil Elastase Activity Assay Kit	Measure neutrophil elastase released by neutrophils after various experimental conditions
14922	Neutrophil Elastase Inhibitor	Selectively targets the binding domain of neutrophil elastase (IC ₅₀ = 7 nM)
601130	Neutrophil/Monocyte Respiratory Burst Assay Kit	Induce respiratory burst response in neutrophils and monocytes and quantify by flow cytometry
600620	Neutrophil Myeloperoxidase Activity Assay Kit	Assay the release of enzymatically active MPO from activated phagocytes

View a complete list of compounds that modulate neutrophil function at www.caymanchem.com

Neutrophil Activation

Item No.	Product Name
11016	A23187
26107	2-chloro Palmitic Acid
10004974	Ionomycin

Item No.	Product Name
11189	N-acetyl-Pro-Gly-Pro Peptide
11437	Nigericin (sodium salt)
10008014	Phorbol 12-myristate 13-acetate (PMA)