

Neutrophil Defensive NETworks

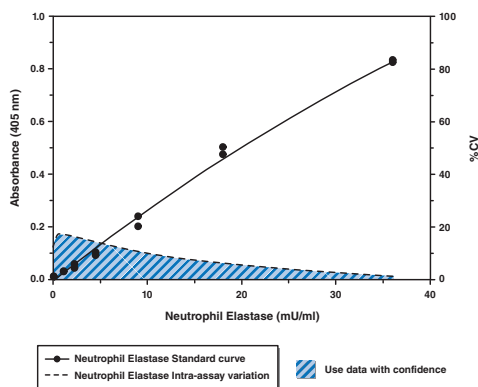


Neutrophils play a critical role in the engulfment and destruction of invasive pathogenic microorganisms. One means by which they do this is to extrude web-like neutrophil extracellular traps (NETs) in response to infectious challenge. NETs are composed of DNA histones and multiple antimicrobial agents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

NET Quantification

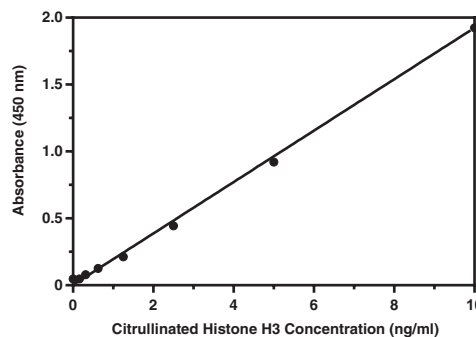
NETosis Assay Kit - Item No. 601010

- Measures elastase released from stimulated neutrophils
- Does not depend upon the DNA component of NETs
- Compatible with any source of NET-producing cells. Use our Neutrophil (mouse) Isolation Kit to collect neutrophils from mouse peritoneal lavage for bone marrow



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

- Detects CitH3, the one NET component that is produced almost exclusively during NET formation
- Validated in mouse bone marrow leukocytes and serum as well as human plasma and serum



Assay Range = 0.15-10 ng/ml
Sensitivity (defined as LLOQ) = 0.3 ng/ml
Lower Limit of Detection = 0.1 ng/ml

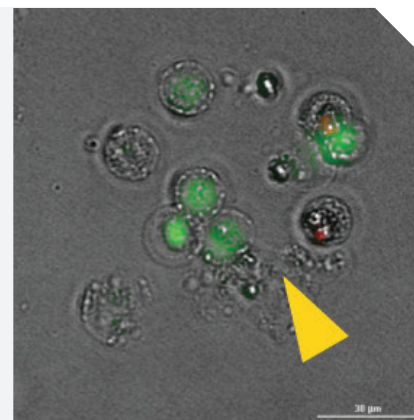
The sensitivity and mid-point were derived from the standard curve shown above. The standard was diluted with Assay Buffer.

Visualization Plus Quantification of NETosis Kinetics

NETosis Imaging Assay Kit - Item No. 601750

- Visualize and quantify NET formation kinetically *ex vivo* and *in vitro*
- Cell-impermeable DNA dye detects extruded DNA
- Includes reagents for enrichment of neutrophils from human blood, staining of cells, and induction of NETosis

Watch the time-lapse video at www.caymanchem.com/imageNETs



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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	Potent, stable pan-PAD inhibitor with increased cellular potency
25378	BB-Cl-Yne	Cell-permeable derivative of BB-Cl-amidine for click chemistry reactions
20582	Citrullinated Core Histones (bovine)	Mixture of H1, H2A, H2B, H3, and H4 histones modified by PAD4
17926	Citrullinated Histone H3 (human recombinant)	Purified protein expressed in <i>E. coli</i> , citrullinated by PAD4
17450	Citrulline-specific Probe-biotin	Affinity probe for citrullinated protein detection through interaction with the biotin ligand
16172	Citrulline-specific Probe-Rhodamine	Fluorescent probe for citrulline-containing protein detection
17488	GSK484 (hydrochloride)	Selective inhibitor of PAD4 (IC ₅₀ = 50 nM)
501460	PAD4 (human) ELISA Kit	Detect human PAD4 in tissue culture medium, cell lysates, plasma, and serum
701320	PAD4 Inhibitor Screening Assay Kit (AMC)	Identify inhibitors of PAD activity using AMC-tagged arginine as a trypsin substrate
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 Western blot

[View a complete list of research tools to study citrullination, the post-translational modification linked to numerous inflammatory and autoimmune disorders, at www.caymanchem.com](http://www.caymanchem.com)

Neutrophil Function

Cayman offers assays that address 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](http://www.caymanchem.com)

NET-associated Pathology

Failure to clear citrullinated proteins and NET components can result in the production of autoantibodies and anti-citrullinated protein antibodies, which are associated with several human diseases.

Cayman's [PAD4 Autoantibody ELISA Kit](#) can be used to measure anti-PAD4 autoantibodies of any isotype in human plasma and serum.

Neutrophil Activation/Isolation Tools

Item No.	Product Name
11016	A23187
19660	LPS from <i>Escherichia coli</i> O55:B5
19661	LPS from <i>Escherichia coli</i> O111:B4
19662	LPS highly purified from <i>Escherichia coli</i> O113
11189	N-acetyl-Pro-Gly-Pro Peptide
601070	Neutrophil (mouse) Isolation Kit
11437	Nigericin (sodium salt)
10008014	Phorbol 12-myristate 13-acetate (PMA)