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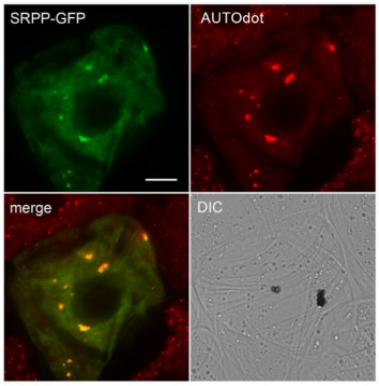
AUTOdot Autophagy Visualization Dye

Monodansylpentane Cadaverine Staining Tool
Catalog # SM1000a

Product Information

Description	AUTODOT™ preferentially segregates into the neutral lipid cores of LDs and emits blue fluorescence, compatible with concurrent use of green and red fluorescent reporters in live-cell imaging. It can be used for visualizing LDs in cell cultures and fixed tissues, making it a versatile marker for LDs in fluorescence microscopy. Major lipid-based pathways such as autophagy, lipolysis, fatty acid oxidation, ketogenesis, and cholesterol synthesis are amenable to tracking by AUTODOT™.
Concentration	0.1M
Target/Specificity	AUTOdot is a monodansylpentane (MDH) staining tool specific for autopahgic vacuoles.
Format	Product is 0.1M MDH supplied in DMSO.
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	AUTOdot Autophagy Visualization Dye is for research use only and not for use in diagnostic or therapeutic procedures.

Images



Localization of guayule Small Rubber Particle Protein (SRPP-GFP) to lipid droplets (LD) in a tobacco cell. Shown are representative epifluorescence micrographs of tobacco (Nicotiana tabacum) Bright Yellow-2 (BY-2) cells, which serve as a well-characterized system for studying protein localization in plant cells. BY-2 cells have been transiently transformed via biolistic bombardment with plasmid DNA-encoding full-length guayule SRPP12 C-terminally fused to the N-terminus of the Green Fluorescent Protein (SRPP-GFP). Following bombardment, cells have been incubated in linoleic acid, which induces an increase in the number and size of LD in these cells, and then incubated with AUTODOTTM, which is a blue-fluorescing marker dye for LD in living cells. The fluorescence attributable to the AUTODOTTM stained LD is false colorized red. The yellow color in the merged images represents obvious co-localizations between SRPP-GFP and AUTODOTTM -stained LD, most of which have coalesced, due to the ectopic overexpression of the fusion protein. These larger coalesced structures are not

observed in the neighboring non-transformed cells wherein LD are usually dispersed throughout the cytosol. Similar coalescence of LD has been observed in BY-2 cells transiently overexpressing Arabidopsis LDAP, as well as in various other cells types in which other LD proteins, such as Perilipin-1 and the Ancient Ubiquitous Protein-1, are ectopically overexpressed. Shown also is the corresponding differential interference contrast image. Bar = 10 μm. Plant Signaling & Behavior 8, e27141; 2013

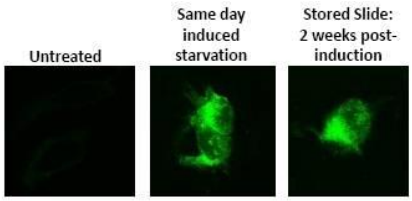


Image of untreated and autophagy induced mouse cerebral cells analyzed by fluorescence microscopy using an inverted microscope equipped with a filter system (excitation filer: 380-420 nm, barrier filter: 450 nm).

Citations

- Single-Cell Transcriptomics Reveals the FA9-VAP Module Regulating Fatty Acid Accumulation in Soybean Seeds.
- Lysosomal lipid metabolism promotes tumor cell invasion through local energetics and membrane lipid remodeling.
- Seipin-defined ER sites undergo distinct enrichment of factors for the biogenesis of sterol ester rich lipid droplets.
- Alternative organelle targeting of OPA1 mediates fatty acid release from lipid droplets.
- Ca(2+) influx through ER-plasma membrane contacts is required for brown fat thermogenesis and metabolic health.
- Myofiber stearoyl-CoA desaturase 1 moderates MAFLD and metabolic syndrome in obese mice.
- Adipogenin promotes the development of lipid droplets by binding a dodecameric seipin complex.
- Telmisartan reverses hepatic steatosis via PCK1 upregulation: A novel PPAR-independent mechanism in experimental models of MASLD.
- Spatial mapping of hepatic ER and mitochondria architecture reveals zonated remodeling in fasting and obesity
- Partitioning into ER membrane microdomains impacts autophagic protein turnover during cellular aging
- Fluorescent Probe as Dual-Organelle Localizer Through Differential Proton Gradients Between Lipid Droplets and Mitochondria
- A metabolically controlled contact site between vacuoles and lipid droplets in yeast
- Fatty Acyl Coenzyme A Synthetase Fat1p Regulates Vacuolar Structure and Stationary-Phase Lipophagy in Saccharomyces cerevisiae
- Loss of RREB1 in pancreatic beta cells reduces cellular insulin content and affects endocrine cell gene expression
- Cue5 Piggybacks on Lipid Droplets for Its Vacuolar Degradation during Stationary Phase Lipophagy
- XK is a partner for VPS13A: a molecular link between Chorea-Acanthocytosis and McLeod Syndrome
- Seipin traps triacylglycerols to facilitate their nanoscale clustering in the endoplasmic reticulum membrane
- Functional interrelationships between carbohydrate and lipid storage, and mitochondrial activity during sporulation in Saccharomyces cerevisiae
- Decoration of myocellular lipid droplets with perilipins as a marker for in vivo lipid droplet dynamics: A super-resolution microscopy study in trained athletes and insulin resistant individuals
- Nitrogen Starvation and Stationary Phase Lipophagy Have Distinct Molecular Mechanisms
- The ATGL lipase cooperates with ABHD5 to mobilize lipids for hepatitis C virus assembly
- The CoQ oxidoreductase FSP1 acts parallel to GPX4 to inhibit ferroptosis
- The Emergence of Lipid Droplets in Yeast: Current Status and Experimental Approaches
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- The Generation of Neutrophils in the Bone Marrow Is Controlled by Autophagy
- Chronic Enrichment of Hepatic Endoplasmic Reticulum-Mitochondria Contact Leads to Mitochondrial Dysfunction in Obesity
- Role for Lipid Droplet Biogenesis and Microlipophagy in Adaptation to Lipid Imbalance in Yeast
- Lipid Droplet-Associated Proteins (LDAPs) Are Required for the Dynamic Regulation of Neutral Lipid Compartmentation in Plant Cells
- SNAP-tagged Chikungunya Virus Replicons Improve Visualisation of Non-Structural Protein 3 by Fluorescence Microscopy
- Pet10p Is a Yeast Perilipin That Stabilizes Lipid Droplets and Promotes Their Assembly
- Long-Chain Polyprenols Promote Spore Wall Formation in
- Rab18 Promotes Lipid Droplet (LD) Growth by Tethering the ER to LDs Through SNARE and NRZ Interactions
- PUX10 Is a Lipid Droplet-Localized Scaffold Protein That Interacts With CELL DIVISION CYCLE48 and Is Involved in the Degradation of Lipid Droplet Proteins

- Cerebellar Ataxia Disease-Associated Snx14 Promotes Lipid Droplet Growth at ER-droplet Contacts
- PNPLA3, CGI-58, and Inhibition of Hepatic Triglyceride Hydrolysis in Mice
- Mdm1 Maintains Endoplasmic Reticulum Homeostasis by Spatially Regulating Lipid Droplet Biogenesis
- Inhibition of Lipid Droplet Formation by Ser/Thr Protein Phosphatase PPM1D Inhibitor, SL-176
- Combined N-terminal androgen receptor and autophagy inhibition increases the antitumor effect in enzalutamide sensitive and enzalutamide resistant prostate cancer cells.
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- The seipin complex Fld1/Ldb16 stabilizes ER-lipid droplet contact sites.
- PNPLA3 variant M148 causes resistance to starvation-mediated lipid droplet autophagy in human hepatocytes.
- Adhesion-induced eosinophil cytolysis requires the receptor-interacting protein kinase 3 (RIPK3)-mixed lineage kinase-like (MLKL) signaling pathway, which is counterregulated by autophagy.
- PCYT1A Regulates Phosphatidylcholine Homeostasis from the Inner Nuclear Membrane in Response to Membrane Stored Curvature Elastic Stress.
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- Regulation of lipid droplets by metabolically controlled Ldo isoforms.
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- Staining of Lipid Droplets with Monodansylpentane.
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- Identification of novel lipid droplet factors that regulate lipophagy and cholesterol efflux in macrophage foam cells
- Kinship of conditionally immortalized cells derived from fetal bone to human bone-derived mesenchymal stroma cells
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- Visualizing Cytoskeleton-Dependent Trafficking of Lipid-Containing Organelles in Drosophila Embryos
- The Antidepressant Sertraline Induces the Formation of Supersized Lipid Droplets in the Human Pathogen
- Triglyceride lipolysis triggers liquid crystalline phases in lipid droplets and alters the LD proteome
- Sterol Metabolism Differentially Contributes to Maintenance and Exit of Quiescence
- Intravital Subcellular Microscopy of the Mammary Gland
- Interaction between VPS13A and the XK scramblase is important for VPS13A function in humans
- ARL8B mediates lipid droplet contact and delivery to lysosomes for lipid remobilization
- Binding of perilipin 3 to membranes containing diacylglycerol is mediated by conserved residues within its PAT domain
- Giant organelle vesicles to uncover intracellular membrane mechanics and plasticity
- EARLY RESPONSIVE TO DEHYDRATION 7 Localizes to Lipid Droplets via Its Senescence Domain
- Mechanism of transcription regulation by Acinetobacter baumannii HpaR in the catabolism of p-hydroxyphenylacetate
- Regulated targeting of the monotopic hairpin membrane protein Erg1 requires the GET pathway
- Development of a whole-cell biosensor for ethylene oxide and ethylene
- SEED LIPID DROPLET PROTEIN1, SEED LIPID DROPLET PROTEIN2, and LIPID DROPLET PLASMA MEMBRANE ADAPTOR mediate lipid droplet-plasma membrane tethering
- Recruitment of Peroxin 14 to lipid droplets affects lipid storage in Drosophila
- A dynamic actin cytoskeleton is required to prevent constitutive VDAC-dependent MAPK signalling and aberrant lipid homeostasis
- Lipid droplets in leaves contain myosin-binding proteins and enzymes associated with furan-containing fatty acid biosynthesis
- E and M SARS-CoV-2 membrane protein expression and enrichment with plant lipid droplets

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.