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# Laurdan (6-Dodecanoyl-2-dimethylaminonaphthalene)

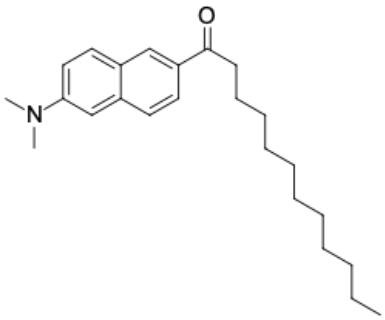
http://www.lumiprobe.com/p/laurdan-membrane-fluidity-probe

Laurdan (6-dodecanoyl-2-dimethylaminonaphthalene) is a membrane-permeable fluorescent probe highly sensitive to the physical state of the surrounding phospholipids.

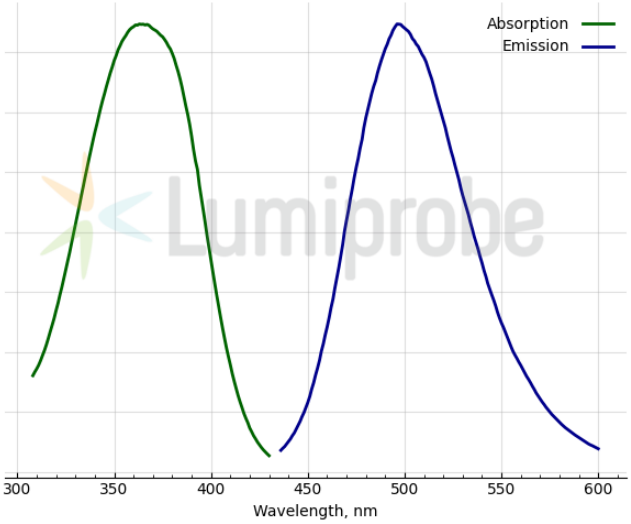
Laurdan is composed of a chain of lauric acid linked to a naphthalene molecule. The hydrophobic tail of the fatty acid embeds the probe in the lipid bilayer. The naphthalene moiety of the molecule localizes at the level of the glycerol backbones of the membrane phospholipids. The chemical structure and membrane location of Laurdan makes it sensitive to the presence and mobility of water molecules in the lipid bilayer. Quantitation of the generalized polarization of Laurdan can be used to identify the phospholipid phase. When excited at 340 nm, generalized polarization values are 0.6 for the gel phase and −0.2 for the liquid crystalline phase. The generalized polarization changes only with phase state and does not change with a polar head group or pH in the range of 4-10.

Laurdan is suitable for generalized polarization imaging and scanning fluorescence correlation spectroscopy. It can also be used to image lipid rafts (lipid microdomains) in live and fixed cells and whole tissues with multiphoton microscopy. The emission maxima of Laurdan are 440 nm and 490 nm in gel and liquid phase membranes, respectively.

To make a concentrated Laurdan stock solution of up to 20 mM, dissolve it in either DMF or acetonitrile.




**Structure of Laurdan**




**Absorption and emission spectra of Laurdan**

## General properties

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|---|---|
| Appearance: | yellow crystals |
| Molecular weight: | 353.55 |
| CAS number: | 74515-25-6 |
| Molecular formula: | $C_{24}H_{35}NO$ |
| IUPAC name: | 1-[6-(Dimethylamino)naphthalen-2-yl]dodecan-1-one |
| Solubility: | DMF, acetonitrile, methanol |
| Quality control: | NMR $^{1}H$ and HPLC-MS (95+%) |
| Storage conditions: | 24 months after receival at -20°C in the dark. Transportation: at room temperature for up to 3 weeks. Desiccate. |
| Legal statement: | Product is offered and sold for research purposes only. Product is not tested for safety and efficacy in food, drug, medical device, cosmetic, no express or implied authorization to use for any other purpose, including, without limitation, in vitro diagnostic purposes, for humans or animals or for commercial purposes. |

**Spectral properties**

| | |
|---|---|
| Excitation/absorption maximum, nm: | 363 |
| Emission maximum, nm: | 496 |