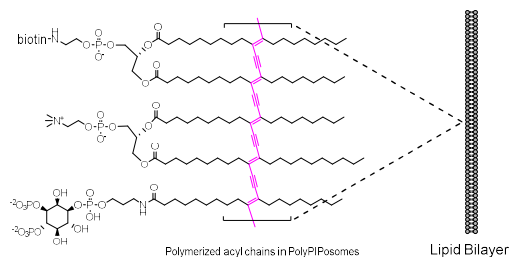


## PolyPIPosomes

PolyPIPosomes are polymerized, liposome-like nanoparticles which show markedly increased stability (up to 6 months) vs. conventional liposomes. A biotin tag is incorporated for easy detection of PIP<sub>n</sub>-binding proteins with streptavidin reagents or coated surfaces. PolyPIPosomes have been used for studying lipid-protein interactions in pull-down assays, surface plasmon resonance, and ELISAs.

Catalog #	PIP <sub>n</sub>	Catalog #	PIP <sub>n</sub>
Y-0000	No PIP <sub>n</sub>	Y-P034	PI(3,4)P <sub>2</sub>
Y-P000	PI	Y-P035	PI(3,5)P <sub>2</sub>
Y-P003	PI(3)P	Y-P045	PI(4,5)P <sub>2</sub>
Y-P004	PI(4)P	Y-P039	PI(3,4,5)P <sub>3</sub>
Y-P005	PI(5)P		



**Composition:** PolyPIPosomes are provided as a 1mM total lipid solution containing 5% PIP in deionized water containing 0.05% sodium azide. The average size of the PolyPIPosomes is 200 nm.

Lipid	Mole %	Concentration (mM) in H <sub>2</sub> O
Polymerizable-PC	65	0.65
Polymerizable-PE	29	0.29
Polymerizable-PIP <sub>n</sub>	5	0.05
Polymerizable-biotin-PE	1	0.009
		1 mM total lipid
Control PolyPIPosomes (Y-0000): 70% PC, 29% PE, 1% biotin-PE		

**Product Appearance:** Pale orange solution.

**Storage and Handling:** PolyPIPosomes are relatively stable at room temperature for short periods of time. For long term storage of up to 6 months, PolyPIPosomes can be stored at 4°C. **DO NOT FREEZE.** Storage in basic buffers (pH > 9.0) or acidic buffers (pH < 4.0) may cause decomposition.

### Selected Applications and References

#### Pull-down Assays

- 1) Elkin, S. K., D. Ivanov, et al. (2005). "A PHD finger motif in the C-terminus of RAG2 modulates recombination activity." *J Biol Chem* **280**(31): 28701-10.
- 2) Weber, S. S., C. Ragaz, et al. (2006). "Legionella pneumophila exploits PI(4)P to anchor secreted effector proteins to the replicative vacuole." *PLoS Pathog* **2**(5): e46.
- 3) Tiwari, S., H. P. Choi, et al. (2009). "Targeting of the GTPase Irgm1 to the phagosomal membrane via PtdIns(3,4)P(2) and PtdIns(3,4,5)P(3) promotes immunity to mycobacteria." *Nat Immunol* **10**(8): 907-17.
- 4) Zemskov, E. A., I. Mikhailenko, et al. (2011). "Unconventional secretion of tissue transglutaminase involves phospholipid-dependent delivery into recycling endosomes." *PLoS One* **6**(4): e19414.

**Hazardous Properties and Cautions:** The toxicological and pharmacological properties of this compound are not fully known. For further information see the MSDS on request. This product is manufactured and shipped only in small quantities, intended for research and development in a laboratory utilizing prudent procedures for handling chemicals of unknown toxicity, under the supervision of persons technically qualified to evaluate potential risks and authorized to enforce appropriate health and safety measures. As with all research chemicals, precautions should be taken to avoid unnecessary exposures or risks.

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- 5) Wang, P, H. Liu (2016). "RAB-10 Promotes EHBP-1 Bridging of Filamentous Actin and Tubular Recycling Endosomes" *PLoS Genetics*, **12**(6): e1006093
- 6) Mathiowetz, A. J., E. Baple, et al. (2017). "An Amish founder mutation disrupts a PI(3)P-WHAMM-Arp2/3 complex driven autophagosome remodeling pathway" *Mol. Biol. Cell.* **28**(19), 2492-2507.

#### Pull-down Assays with Streptavidin Coated Beads

- 1) Naslavsky, N., J. Rahajeng, et al. (2007). "EHD1 and Eps15 interact with phosphatidylinositols via their EH-domains." *J Biol Chem.* **282**(22): 16612-22.
- 2) Sagona, A. P., I. P. Nezis, et al. (2010). "PtdIns(3)P controls cytokinesis through KIF13A-mediated recruitment of FYVE-CENT to the midbody." *Nat Cell Biol* **12**(4): 362-371.
- 3) Ueyama, T., J. Nakakita, et al. (2011). "Cooperation of p40(phox) with p47(phox) for Nox2-based NADPH oxidase activation during Fcγ receptor (FcγR)-mediated phagocytosis: mechanism for acquisition of p40(phox) phosphatidylinositol 3-phosphate (PI(3)P) binding." *J Biol Chem* **286**(47): 40693-705.
- 4) Tan, X., Y. Sun. (2015). "LAPTM4B is a PtdIns(4,5)P2 effector that regulates EGFR signaling, lysosomal sorting, and degradation" *EMBO J.* **34**(4): 475-90.
- 5) Hong, N.H., A. Qi. (2015) "PI(3,5)P2 controls endosomal branched actin dynamics by regulating cortactin-actin interactions" *J. Cell. Biol.* **210**(5): 753-769.

#### Floatation Assay (similar to pull-down)

Skwarek, L. C., M. K. Garroni, et al. (2007). "Neutralized Contains a Phosphoinositide-Binding Motif Required Downstream of Ubiquitination for Delta Endocytosis and Notch Signaling." *Developmental Cell* **13**(6): 783.

#### ELISA

Burkhead, J. L., C. T. Morgan, et al. (2009). "COMMD1 Forms Oligomeric Complexes Targeted to the Endocytic Membranes via Specific Interactions with Phosphatidylinositol 4,5-Bisphosphate." *J Biol Chem* **284**(1): 696-707.

#### Cells

Antony, P., K. Hoek, et al. (2007). "Micro-scale flow cytometry-based and biochemical analysis of lipid signaling in primary B cell subpopulations." *Biol Proced Online* **9**: 73-83.

#### Surface Plasmon Resonance (SPR)

- 1) Meuillet, E. J., S. Zuohe, et al. (2010). "Molecular pharmacology and antitumor activity of PHT-427, a novel Akt/phosphatidylinositide-dependent protein kinase 1 pleckstrin homology domain inhibitor." *Mol Cancer Ther* **9**(3): 706-17.
- 2) Ferguson, C. G., R. D. James, et al. (2005). "Phosphoinositide-Containing Polymerized Liposomes: Stable Membrane-Mimetic Vesicles for Protein-Lipid Binding Analysis." *Bioconj Chem* **16**(6): 1475-1483.

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