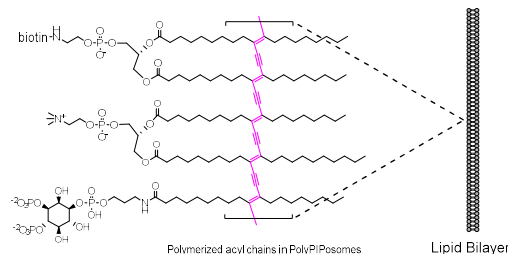


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PolyPIPosomes

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_n-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 _n	Catalog #	PIP _n
Y-0000	No PIP _n	Y-P034	PI(3,4)P ₂
Y-P000	PI	Y-P035	PI(3,5)P ₂
Y-P003	PI(3)P	Y-P045	PI(4,5)P ₂
Y-P004	PI(4)P	Y-P039	PI(3,4,5)P ₃
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 ₂ O
Polymerizable-PC	65	0.65
Polymerizable-PE	29	0.29
Polymerizable-PIP _n	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.
- 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.

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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/phosphatidylinositol-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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