



Penta-block copolymer microspheres: Impact of polymer characteristics and process parameters on protein release

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Titre	Penta-block copolymer microspheres: Impact of polymer characteristics and process parameters on protein release
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Auteur	Le, Minh Quan [1], Violet, Fabien [2], Paniagua, Cédric [3], Garric, Xavier [4], Venier-Julienne, Marie-Claire [5]
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Mots-clés	Microencapsulation [6], Morphology [7], Penta-block copolymer [8], Protein sustained release [9]
Résumé en anglais	<p>Here, we aimed to develop protein loaded microspheres (MSs) using penta-block PLGA-based copolymers to obtain sustained and complete protein release. We varied MS morphology and studied the control of protein release. Lysozyme was used as a model protein and MSs were prepared using the solid-in-oil-in-water emulsion solvent extraction method. We synthesized and studied various penta-block PLGA-based copolymers. Copolymer characteristics (LA/GA ratio and molecular weight of PLGA blocks) influenced MS morphology. MS porosity was influenced by process parameters (such as solvent type, polymer concentration, emulsifying speed), whereas the aqueous volume for extraction and stabilizer did not have a significant effect. MSs of the same size, but different morphologies, exhibited different protein release behavior, with porous structures being essential for the continuous and complete release of encapsulated protein. These findings suggest strategies to engineer the morphology of MSs produced from PLGA-based multi-block copolymers to achieve appropriate release rates for a protein delivery system.</p>
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- [1] <http://okina.univ-angers.fr/minhquan.le/publications>
- [2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=24301>
- [3] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=24305>
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- [11] <http://dx.doi.org/10.1016/j.ijpharm.2017.11.033>
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