



New starch-based radiotracer for lung perfusion scintigraphy

Submitted by Emmanuel Lemoine on Thu, 10/16/2014 - 14:04

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| Titre | New starch-based radiotracer for lung perfusion scintigraphy |
| Type de publication | Article de revue |
| Auteur | Lacœuille, Franck [1], Hindré, François [2], Denizot, Benoit [3], Bouchet, Francis [4], Legras, Pierre [5], Couturier, Olivier-François [6], Askiénazy, Serge [7], Benoît, Jean-Pierre [8], Le Jeune, Jean-Jacques [9] |
| Editeur | Springer Verlag |
| Type | Article scientifique dans une revue à comité de lecture |
| Année | 2010 |
| Langue | Anglais |
| Date | Janv. 2010 |
| Numéro | 1 |
| Pagination | 146-155 |
| Volume | 37 |
| Titre de la revue | European Journal of Nuclear Medicine and Molecular Imaging |
| ISSN | 1619-7089 |
| Mots-clés | Blood derivative [10], Cardiology [11], Imaging / Radiology [12], Microparticles [13], Nuclear Medicine [14], Oncology [15], Orthopedics [16], Perfusion scintigraphy [17], Starch [18], Tc-99m radiopharmaceutical [19] |
| Résumé en anglais | <p>PURPOSE: In order to avoid the microbiological risks linked to human serum albumin macroaggregates (MAA) used for lung perfusion scintigraphy, we developed a new starch-based Tc-99m potential radiopharmaceutical.</p> <p>METHODS: Microparticles were prepared from oxidised starch coupled to natural polyamine for Tc-99m complexation. Suspensions were formulated as ready-to-use kits for easy one-step labelling procedures.</p> <p>RESULTS: Particle-size analysis, electron microscopy, and confocal microscopy were performed for microparticle characterisation, and gave a typical size distribution ranging from 7 to 63 microm, with a homogenous population of spherical or oval-shaped microparticles. Radiochemical purity exceeded 95%, and was stable for at least 8 h. When challenged with histidine and human plasma, labelling was also stable. Dynamic scintigraphic acquisitions and biodistribution studies conducted on healthy Wistar rats showed a tracer accumulation with more than 80% of the ID in the lungs after 15 min.</p> <p>CONCLUSIONS: With clinically significant characteristics such as a lung half-life of 3 h, a lung-to-vascular ratio of 900, and a lung-to-liver ratio of 90, starch-based microparticles exhibit all the qualities for an effective new lung perfusion agent.</p> |

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| URL de la notice | http://okina.univ-angers.fr/publications/ua4934 [20] |
| DOI | 10.1007/s00259-009-1226-6 [21] |
| Lien vers le document | http://dx.doi.org/10.1007/s00259-009-1226-6 [21] |

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- [21] <http://dx.doi.org/10.1007/s00259-009-1226-6>

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