

## Development of Aptamer Anti-MUC1 Labelled with Na-22 and Ga-68 as a Positron Emission Tomography Radiopharmaceutical

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**SUMMARY.** The development of radiopharmaceuticals based on biological molecules has been increasing in the last few years. The high specificity associated with high affinity, especially in tumours site has emerged this class of radiopharmaceuticals as a whole new perspective, for both: therapy and imaging. In this study we develop and evaluate the aptamer anti-MUC1 labelled with Ga-68 and Na-22 as PET radiopharmaceutical for prostate cancer. The results showed that the methodology developed for labelling the aptamer with Ga-68 and Na-22 (separately) was quite efficient and support as a methodology that could be used for cold kit in nuclear medicine daily routine.

**RESUMEN.** El desarrollo de radiofármacos basados en moléculas biológicas ha ido en aumento en los últimos años. La alta especificidad asociada con una alta afinidad, especialmente por el sitio tumoral, ha hecho surgir esta clase de radiofármacos como una nueva perspectiva, tanto para la terapia como para la imagen. En este estudio desarrollamos y evaluamos el aptámero anti-MUC1 marcado con Ga-68 y Na-22 como radiofármaco PET para el cáncer de próstata. Los resultados mostraron que la metodología desarrollada para etiquetar el aptámero con Ga-68 y Na-22 (por separado) era bastante eficiente y como una metodología de apoyo que se podría utilizar para el kit de frío en la rutina diaria de la medicina nuclear.

**KEY WORDS:** aptamer, imaging, PET radiopharmaceutical, radiopharmacy.

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