Rica, Panamá, República Dominicana, etc. Conclusão: Radiopharmacy is a flourishing specialty of increasing complexity that requires solid theoretical knowledge and specialized practical skills. The Radiochemistry Area in the public University of Uruguay is fostering the development and generational replacement in our continent with the objective to improve the quality of the Radiopharmaceuticals received by our population. **Acknowledgments:** Centro Uruguayo de Imagenología molecular, CUDIM and Centro de Medicina Nuclear e Imagenología Molecular del Hospital de Clínicas.

Keywords: Education, Online courses, Posgraduate, Radiopharmacy.

https://doi.org/10.1016/j.htct.2024.04.060

EVALUATION OF POTENTIAL PEPTIDE INHIBITORS THAT INTERACT WITH THE EGF RECEPTOR. RELEVANCE TO GLIOBLASTOMA

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Introduction/Justification: Peptides are implicated to various physiological responses and exhibit considerable potential for disease treatment, encompassing diverse types of tumors. The significant therapeutic promise of peptides is related from their characteristics, including the ability to inhibit angiogenesis, induce tumor apoptosis and block of epidermal growth factor receptor (EGFr) signaling. Their relevance is underscored by overexpression in a range of human cancers, notably glioblastoma, which represents the most prevalent and aggressive form of malignant brain tumors. **Objectives:** This study aims to assess the growth inhibition of rat (C6 cells) and human (U-87 MG cells) glioblastoma tumor cells using peptides that interact with the EGFr. **Materials and Methods:** The anti-EGFr peptides were synthesized through the solid-phase peptide synthesis using the Fmoc/tBut strategy. Peptide cleavage from the resin was performed using a mixture containing a high concentration of trifluoroacetic acid (reagent K). Subsequently, the peptides underwent a characterization and purification process employing high performance liquid chromatography (HPLC) and mass spectrometry. C6 and U-87 MG cell lines were cultured in supplemented DMEM F-12 medium at 37°C and 5% CO2 until reaching 90% confluence. To assess the effect of peptides on cell proliferation, cells were seeded at a concentration of 5×103 in 6-well plates, with the presence of 80 μM of each proposed peptide. Growth curves were performed in sextuplicate over a 7-day period, with cell counts conducted on days 1, 3, 5, and 7. Cell viability in the presence of peptides was determined using the MTT test. For this analysis, cells were plated at a concentration of 5×103 in 96-well plates, with peptide concentrations of 80, 120, and 160 μM. Spectrophotometric analyses were performed after 24 h and 7 days of incubation at 595 nm. **Results:** Anti-EGFr-LP and anti-EGFr-LG peptides were synthesized efficiently with yields of approximately 45 and 98%, respectively. Chromatographic analyzes obtained by HPLC confirmed that the entire synthesis, cleavage, and characterization process of peptides were performed efficiently, as evidenced by the presence of only a single peak corresponding to the synthesized peptides. Following the determination of growth curve profiles of C6 and U-87 MG cell lines, without the presence of peptides, the interaction of the peptides with both tumor cell types was assessed. The results demonstrated that both anti-EGFr-LP and anti-EGFr-LG peptides significantly interacted with and inhibited the growth of C6 and U-87 MG strains ($p < 0.0001$). Studies conducted with C6 cells showed inhibition percentages of approximately 55.3% and 99.1% for the Anti-EGFr-LP and anti-EGFr-LG peptides, respectively. On the other hand, an inhibition percentage of growth of U-87 MG cells was 44.4% for the Anti-EGFr-LP and 46.4% for the anti-EGFr-LG. Finally, based on the MTT test, the peptides exhibited no toxicity at any of the three concentrations tested. **Conclusion:** The findings indicate that both proposed peptides, at a minimum concentration (80 μM) effectively reduced the proliferation of tumor cells without inducing toxicity. While further experiments are warranted, the peptides have demonstrated the capability to inhibit tumor cell growth associated with glioblastoma, suggesting a potential therapeutic alternative.

Keywords: C6 cells, EGFr-targeting peptides, glioblastoma, U-87 MG cells.

https://doi.org/10.1016/j.htct.2024.04.061

INVESTIGATION OF THE IN VITRO ASSESSMENT OF 99MTC-LABELED LAMININ-111 PEPTIDES AS PROSPECTIVE BIOMARKERS FOR BREAST CANCER

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Introduction/Justification: Breast cancer constitutes a significant public health issue as the second most prevalent type of tumor among women. In the past decade, radiolabeled peptides have been employed in both therapeutic interventions and tumor imaging, representing a substantial promise in the specific targeting of tumorigenic cells. Several studies demonstrate that biologically active peptides derived from laminin-111 regulate gene expression in breast cancer-derived cells, including the YIGSR and IKVAV peptides. **Objectives:** To synthesize the HYIGSR and HIKVAV fragments, derived from laminin-111, standardize and optimize their radiolabeling process with technetium-99m (99mTc), as well as, to assess the in vitro biological characteristics of these radiolabeled peptides as potential biomarkers for breast cancer. **Materials and Methods:** The HYIGSR and HIKVAV peptides were