PRODUCTION AND THERMOCHROMATOGRAPHIC SEPARATION OF NO-CARRIER-ADDED ^{90}Nb VIA ^{93}Nb(p,4n)^{90}Mo

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In recent years, a lot of research has been performed to expand available radionuclides for immuno-PET diagnostics with ^{64}Cu, ^{86}Y, ^{76}Br, ^{89}Zr, ^{124}I. Another one promising radionuclide is ^{90}Nb because of its suitable characteristics: a half-life of 14.6 hours, a relative fraction of β^+-radiation of 53%, an average energy of β^+ radiation of 350 keV [1]. An important task is to develop an express method for obtaining ^{90}Nb radionuclide without a carrier.

Here we report an original method for isolating ^{90}Nb ($T_{1/2}$ = 14.6 h) produced in ^{93}Nb(p,4n)^{90}Mo reaction via β^+-decay of ^{90}Mo ($T_{1/2}$ = 5.7 h). Niobium target was irradiated with 65 MeV protons. The separation of ^{90}Mo from the irradiated target was carried out in a high-temperature tubular furnace. The thermochromatographic method provides a high yield of the mother radionuclide ^{90}Mo for accumulation ^{90}Nb.

1. V.Radchenko *et al.* // Nuclear Medicine and Biology. 2016. V.43. P.280.