Fee-based distribution of radioisotopes

T. Kambara,[*1] A. Yoshida,[*1] H. Haba,[*1] J. Kanaya,[*1] S. Shibata,[*1] Y. Wakitani,[*1,*2] and S. Yanou[*1,*2]

RIKEN distributes radioisotopes (RIs) produced at RIBF to users in Japan for a fee. This project was started in October 2007 in collaboration with the Japan Radioisotope Association[1] (JRIA), an organization established to support the utilization of RIs in Japan. According to a material transfer agreement (MTA) drawn between JRIA and RIKEN, JRIA mediates the transaction of the RIs and distributes them to users for a fixed fee. The distributed RIs are ^{65}Zn ($T_{1/2}$ = 244 days), ^{109}Cd ($T_{1/2}$ = 463 days), and ^{88}Y ($T_{1/2}$ = 107 days).

The RIs are produced by the RI Applications Team at the AVF cyclotron. ^{65}Zn and ^{88}Y are produced through (p,n) reactions with natural Cu and SrO targets, respectively. ^{109}Cd is produced through the ^{109}Ag(d,2n)^{109}Cd reaction with a 24-MeV deuteron beam since the (d,2n) reaction is more efficient than the conventional (p,n) reaction and the produced RI has almost the same specific activity.[2]

The prices of the distributed RIs listed in the MTA were determined on the basis of the production costs and efficiencies before the start of the distributions and have been unchanged for more than five years. The production costs and efficiencies were reviewed in 2012, and new prices were set effective in 2013. The price of ^{65}Zn has been increased except for quantities smaller than 1 MBq. The prices for ^{109}Cd and ^{88}Y have been reduced, reflecting an improvement in the production yields. In particular, the use of the (d,2n) reaction for the ^{109}Cd production has contributed to the price reduction.

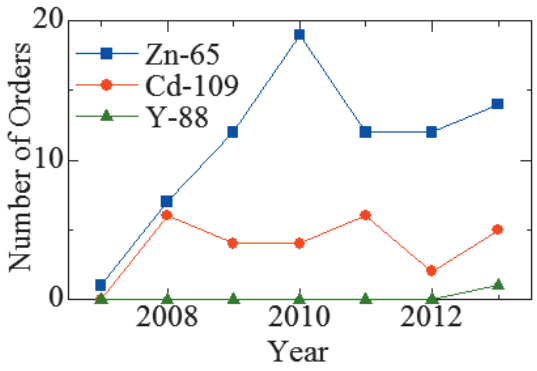

Fig. 1. Number of orders of ^{65}Zn, ^{109}Cd, and ^{88}Y distributed yearly from 2007 to 2013.

In 2013, we delivered five shipments of ^{109}Cd with a total activity of 14.15 MBq, 14 shipments of ^{65}Zn with a total activity of 72.7 MBq, and one shipment of ^{88}Y with an activity of 0.03 MBq. The shipment of ^{88}Y was the first one since February 2010 when the distribution of this radioisotope was formalized. The final recipients of the RIs were eight universities, two research institutes, and one private company. Compared with 2012, the amount of ^{109}Cd distributed in 2013 was lower by about 30 % (20 MBq in 2012) and the amount of ^{65}Zn was higher by about 24 % (58.4 MBq in 2012). Figure 1 shows the yearly trends in the number of orders, and Fig. 2 shows the amounts of the distributed RIs. Data for ^{88}Y are not included in Fig. 2 because the amount of 0.03 MBq is too small to be displayed.

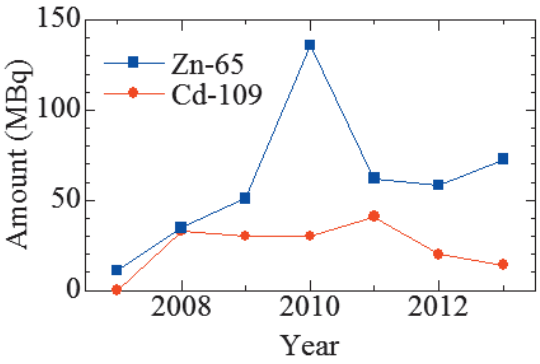

Fig. 2. Amounts of ^{65}Zn and ^{109}Cd distributed yearly from 2007 to 2013.

Information on the RIs can be obtained from JRIA through their dedicated website (https://www.j-ram.net/jram/DispatchTopPage.do; in Japanese), FAX (03-5395-8055), or E-mail (gyomu1@jrias.or.jp).

References

1) http://www.jrias.or.jp/ (Japanese), http://www.jrias.or.jp/e/ (English).
2) J. Kanaya et al.: RIKEN Accel. Prog. Rep. **46**, 250 (2013).

*1 RIKEN Nishina Center
*2 Japan Radioisotope Association