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Basic evaluation of ^{67}Ga labeled digoxin derivative as a metal-labeled bifunctional radiopharmaceutical

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To develop metal-labeled digoxin radiopharmaceuticals with affinity with anti-digoxin antibody as well as Na^+,K^+-ATPase, a digoxin derivative conjugated with deferoxamine was synthesized. The derivative had a high binding affinity with ^{67}Ga at deferoxamine introduced to the terminal sugar ring of digoxin. The ^{67}Ga labeled digoxin derivative showed enough *in vitro* binding affinity and selectivity to anti-digoxin antibody as well as Na^+,K^+-ATPase. The ^{67}Ga labeled digoxin derivative is considered to be a potential metal-labeled bifunctional radiopharmaceutical for digoxin RIA as well as myocardial Na^+,K^+-ATPase imaging.

Key words: digoxin, radiopharmaceutical, deferoxamine, radioimmunoassay, Na^+,K^+-ATPase