



## Radioisotopes production in Hashemite Kingdom of Jordan

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### **Abstract:**

The production of radioisotopes in HKJ began in 2004 at JRMS1, in the Nuclear Medicine Unit and the Cyclotron Center/ in KHMC2, by producing 18F-FDG, using 11Mev eclipse cyclotron.

At that time, there was only one PET3 scan at the same JRMS facility.

Then new Cyclotron center was then built in the private sector in 2013.

Nowadays we have 8 PETs working, and 2 other under construction PETs

In 2010 HKJ decided to enter the nuclear world via establishing reactor for research & training purposes.

Its main object was to build a man power that can operate the nuclear power plant for producing electricity, training the nuclear engineering students, researches, and Radioisotopes production for medical and industrial uses. For all these purposes the Jordan Research & Training Reactor (JRTR) was born.

The Jordan Research & Training Reactor (JRTR) is a part of the Jordanian nuclear program that has been realized as the first nuclear critical facility. It is located in the north of Hashemite Kingdom of Jordan (HKJ), in the campus of Jordan Science & Technology University (JUST), 70 km far north of the Jordan capital city Amman.

It was built in collaboration with Korean Atomic Energy & Research Institute (KAERI) and Daewoo Engineering (KDC) Consortium, as advanced model of open pool type reactor, and considered to be the safest research reactor model. The project construction started in 2010 and finished in 2016.

JRTR got the operation license from the Jordanian regulatory Authority; Energy & Minerals Regulatory Commission (EMRC), in 2017 to operate and produce (I131, Mo99m, and Ir192).



In November 2017 we produced the first sample product of NaI-131, and then the product subjected to the quality control for chemical and physical properties.

In our future vision and plan for the radiopharmacy field, we look forward to produce more radioisotopes either in JRMS or in the JRTR, and to control all nuclear lab (hot lab) in Jordan, as an unique specialists in our country to control the usage of nuclear materials in medicine and to give this material the pharmaceutical status under the JFDA4 rules.

- 1- Jordanian Royal Medical Services
- 2- King Hussein Medical City
- 3- Positron Emission Tomography
- 4- Jordanian Food & Drug Administration

### **Biography:**

Dr. Ala' Abdul Jaleel Khwaj/Radiopharmacist Senior Specialist/ Technical Manager at JRTR

### **Publication of speakers:**

1. Calcium involved in the vasorelaxant effect of convolvulus arvensis L extract on rabbit aorta rings, 2011
2. Taurine Implicated in Bromocriptine Induced Hallucination: Glycine-Glutamic-Aspartic Implicated in Bromocriptine Induced Schizophrenia, 2010
3. Changes in free amino acids in Peripheral Blood (PB) lymphocytes and Polymorphonuclear (PMN) leukocytes after treatment with diazepam

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