



**GOVERNMENT OF INDIA
DEPARTMENT OF ATOMIC ENERGY
BOARD OF RADIATION & ISOTOPE TECHNOLOGY**



New products for cost-effective management/ treatment of joint disorders



Yttrium-90 (^{90}Y) Hydroxyapatite

- Colloidal preparation for intra-articular injection
- For radiation synovectomy of large joints such as knee joint
- ^{90}Y half-life ($t_{1/2}$) – 64.2 h
- Pure beta (β^-) emitter
- Max Beta energy ($E_{\beta\text{max}}$): 2.2 MeV
- Dosage: 10 mCi (370 MBq) at calibration date

Lutetium-177 (^{177}Lu) Hydroxyapatite

- Colloidal preparation for intra-articular injection
- For radiation synovectomy of small & medium joints
- ^{177}Lu half-life ($t_{1/2}$) – 6.7 d
- $E_{\beta\text{max}} = 497 \text{ keV}$ and $E_{\gamma} = 208 \text{ keV}$ (11.1%), 113 keV (6.6%).
- Dosage: 10 mCi (370 MBq) at calibration date