



# IPAS 2004 Bad Hofgastein 12-13/02/04



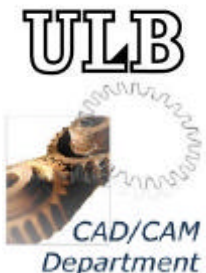
# DESIGN OF AN IMPLANTABLE MICROPUMP

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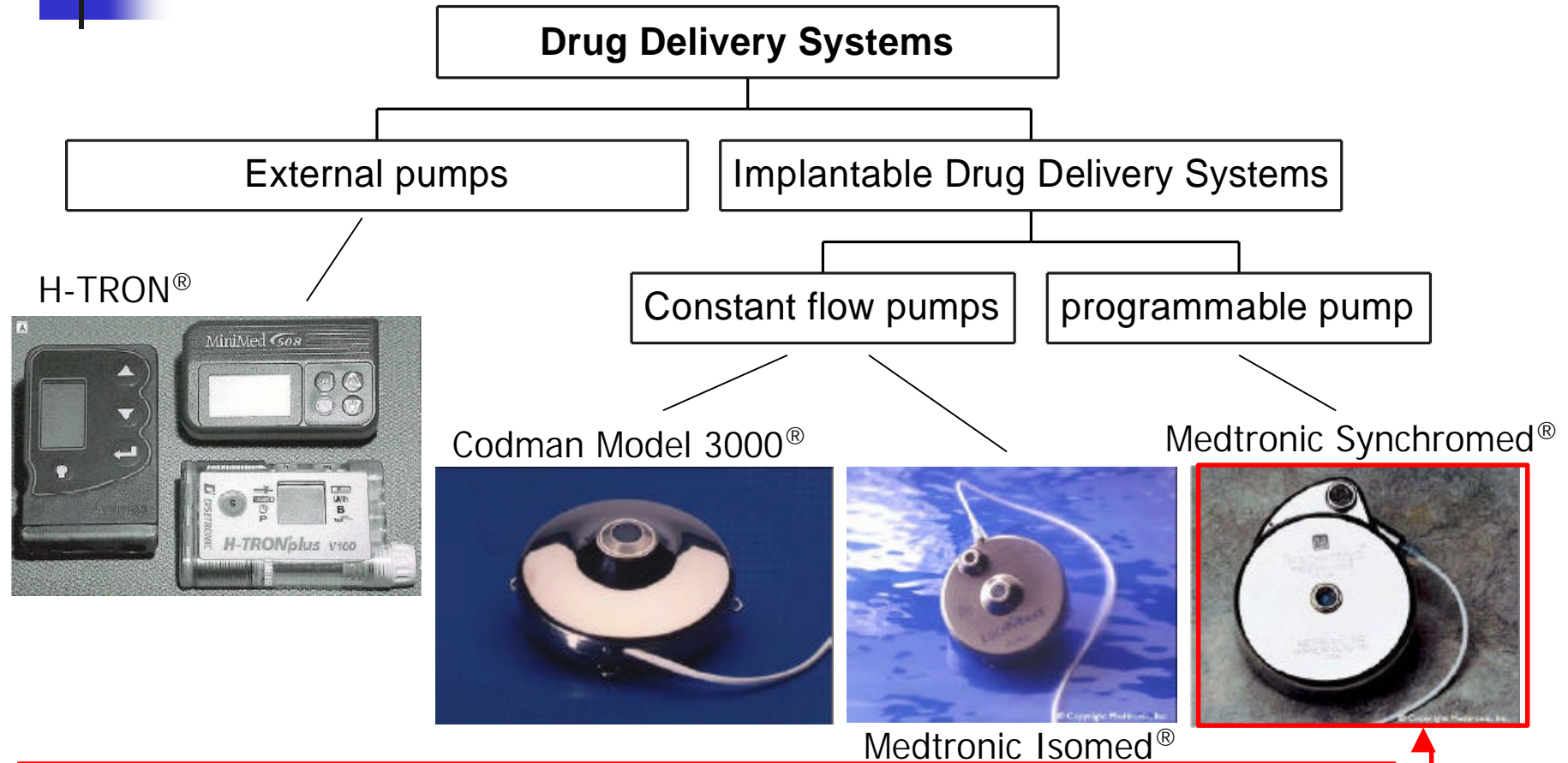
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Project sponsored by the region wallonne

# Drug delivery systems



Only totally programmable pump approved in the U.S. and Europe

# Drug delivery systems

	External	Implantable
Constant flow		-Medtronic Isomed <sup>®</sup> -Codman Model 3000 <sup>®</sup>
Programmable	-Disetronic D-Tron <sup>®</sup> plus -Disetronic H-TRON <sup>®</sup> plus -...	-Medtronic Synchromed <sup>®</sup>

- Implantable:
  - Risk of infection reduced
  - No restrictions during activities
  - Limited autonomy
- Programmable:
  - Clinicians can adjust doses
- Intrathecal
  - Medication is rapidly assimilated
  - Much smaller doses needed
  - Frequency of side effects reduced

# Context

- Infusion system: Insulin pump  
D-TRON<sup>®</sup>plus from Disetronic

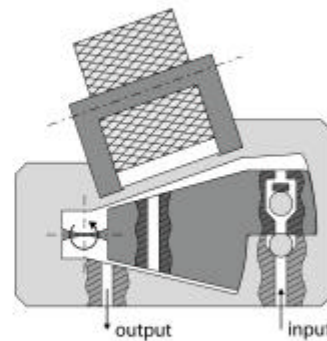
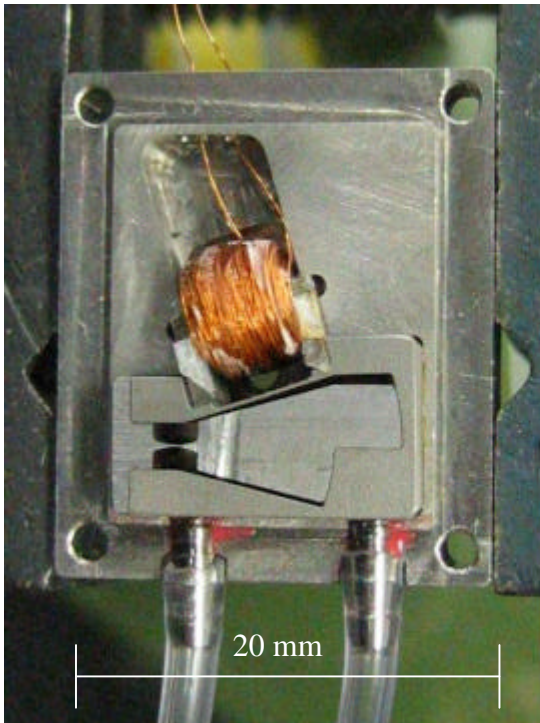


# Context

- Synchromed<sup>®</sup> programmable pump (Medtronic<sup>®</sup>, Inc.; Minneapolis, MN)



# Pump prototype



- Holding together:
  - Piston
  - Casing
  - Globe valves
  - electromagnet



# Organisation du travail

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- État de l'art des pompes existantes
  - Déjà en partie réalisé
- Micro-technologies utilisables
- Nouveau design de pompe
- Réalisation d'un prototype (ou une partie fonctionnelle)
- Tests?