

BIOENGINEERING INNOVATIONS IN MEDTECH FOR EYE REPAIR



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SHANAHAN CHAIR IN FRONTIER
MEDICAL SOLUTIONS, BIOMED. ENG.
UoM



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CORNEA
(CLEAR WINDOW
TO SIGHT)

CORGEL:
MANUFACTURING
TISSUE ENGINEERED
**CORNEAL
TRANSPLANTS**

HYDROGEL
SCAFFOLD
(RESILIENT
ENOUGH TO
BE OPERATED
WITH)

I DONOR
MANY
= TRANSPLANTS



POLYACTIVA:
BESPOKE,
INJECTABLE
DRUG POLYMER
IMPLANTS

CONTROLLABLE
QUANTITIES
& TIME PERIOD
OF DRUG ADMINISTRATION

USED IN
GLAUCOMA
TREATMENT

TRANSPARENT,
STABLE & WELL-TOLERATED

**HYDROGEL
TECH
APPLICATIONS**

SCAFFOLD
TO GROW
TISSUE
(NO FOREIGN
BODY RESPONSE
ISSUES)



GROWING SYNTHETIC SCAFFOLDS

SYNTHETIC
CORNEAL
TRANSPLANT

Q & A

UNMET CLINICAL CHALLENGES

SUPPLY
OF TREATMENTS

ENGINEERING
SUPPORT

BIOLOGY:
ACCOUNTING FOR COMPLEX
INTERACTIONS BETWEEN
CELLS & MATERIALS



TIMELINES
TO DEVELOPING
COMMERCIAL
PRODUCTS

A MINIMUM OF
10 YEARS
(REQUIRES LOTS OF
SUPPORT!)

**DEMAND
DRIVES
CLINICAL
APPLICATION**

CHALLENGES IN MANUFACTURING IN OPHTHALMOLOGY

REQUIRES
SPECIALISED
PROCESSES
(STERILE, NO
FOREIGN BODIES,
PURE)

NO
DEDICATED
FACILITIES
IN AUS

TALENT
BARRIERS

IMPORT
OR
SEND OUT,
& BRING
BACK



IN RESEARCH,
IT'S IMPORTANT TO
COMMUNICATE
WITH CLINICIANS!

WHAT DO
YOU NEED?

WHAT WE
CAN OFFER

ENTERING THE FIELD

BE A
SPONGE!
LEARN AS
MUCH AS YOU CAN!

PHD IS
VALUABLE,
BUT NOT A
PRE-REQUISITE

POST-DOC
= OPTIONS,
CONFIDENCE
& NETWORKS

PATENTS:

ASSURANCE OF EXCLUSIVITY;
CONTRACT BETWEEN
INVENTOR + COMMUNITY

ECONOMIC GAIN



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