FLUORESCENT IMAGING SYSTEM FOR CANCER SURGERY

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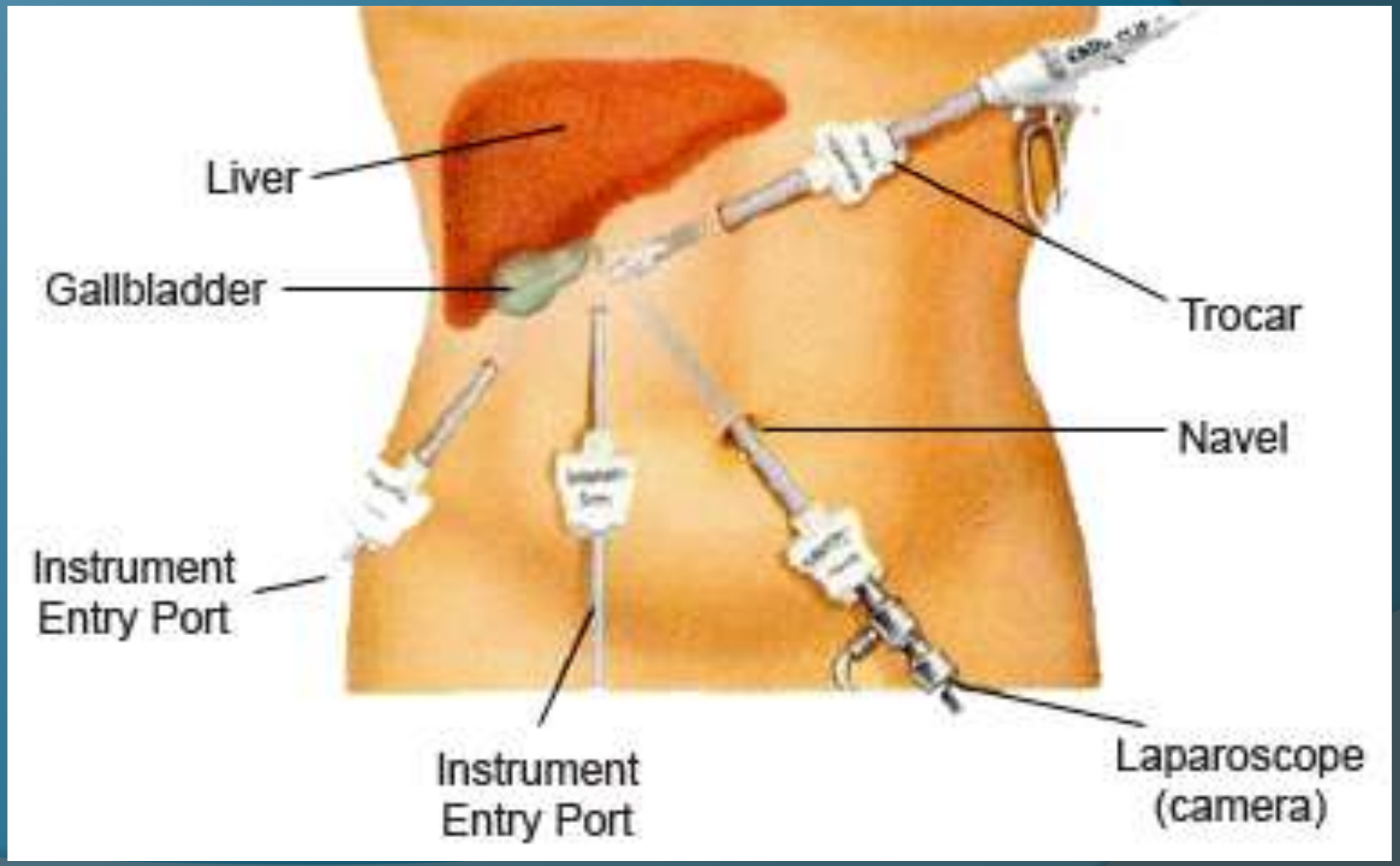
OVERVIEW

- Clients
- Project Introduction
- Background Information
- Design Criteria
- Design Alternatives
- Final Design
- Design Matrix
- Future Work and Conclusions

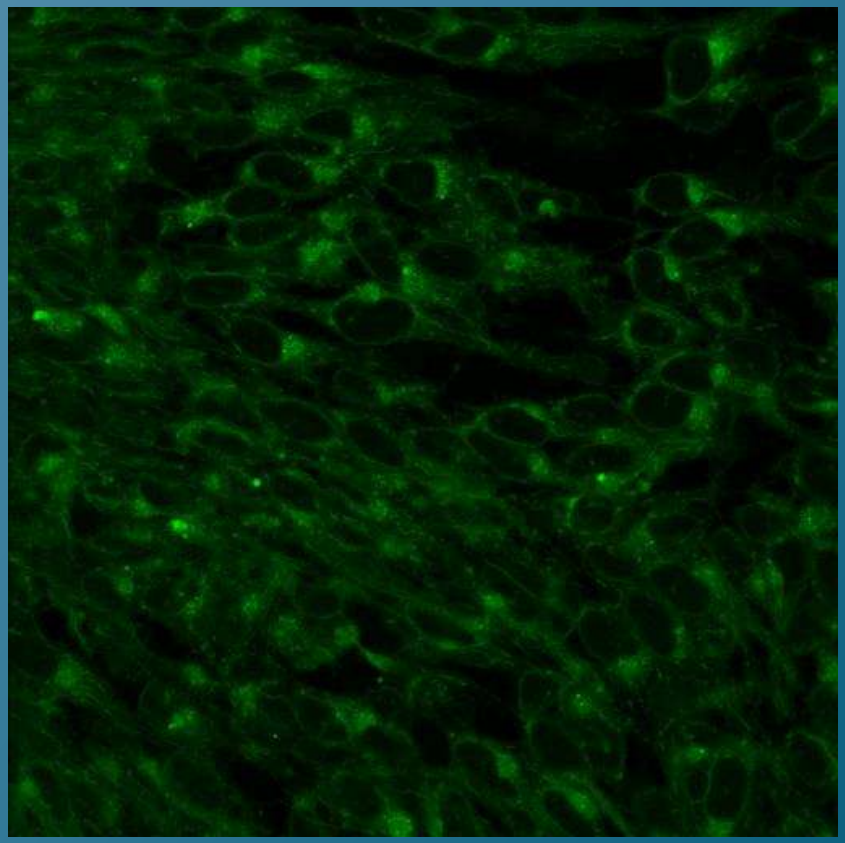
CLIENTS

- Thomas (Rock) Mackie, PhD, Director of Medical Devices Research at the Morgridge Institute for Research
- Dale Bjorling, DVM, MS, Associate Dean for Research and Graduate Training, UW Veterinary School
- Jamey Weichert, PhD, Associate Professor of Radiology

INTRODUCTION



BACKGROUND



CLR-1501

Cells stained with saline

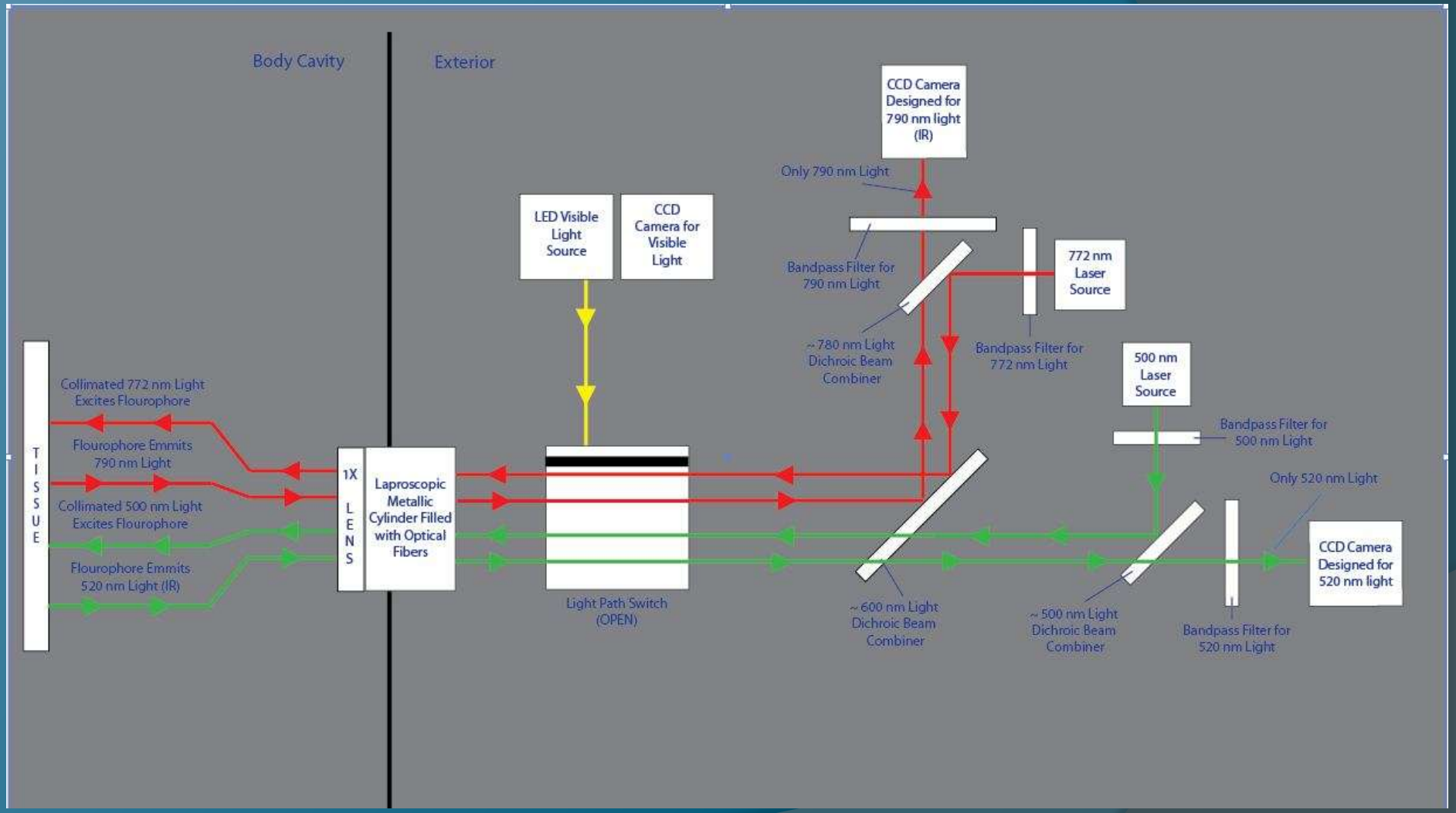
Image from Dr. Weichert

DESIGN CRITERIA

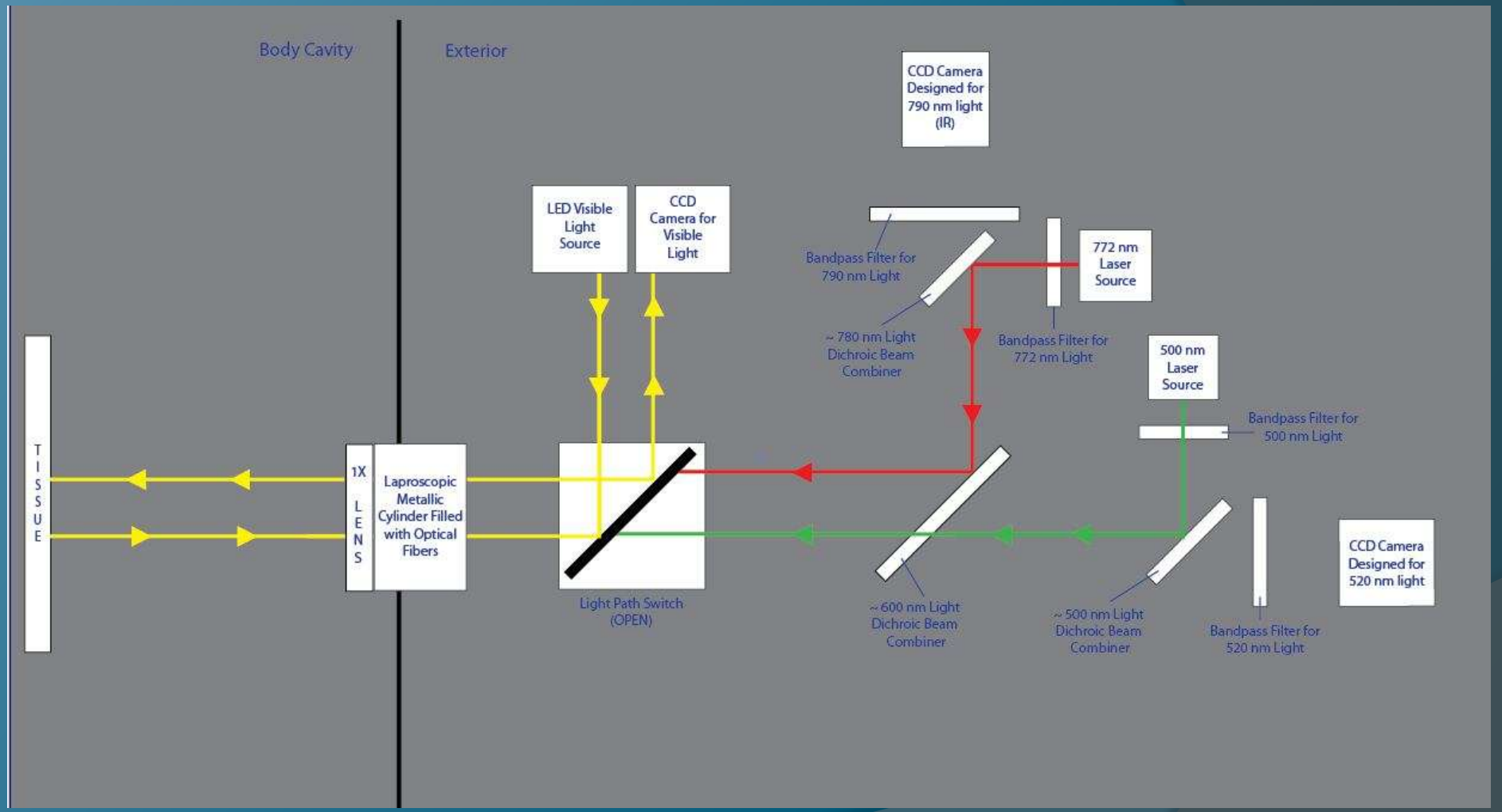
- High-resolution camera (1200 x 1200 pixels^2), 30 fps
- Light source capable of exciting at 500 nm and 772 nm
- Produces visible white light image
- 3 separate images in display feedback, plus composite image
- Self-cleaning mechanism
- Total 1 cm diameter
- Rigid body endoscope

http://img.medicalexpo.com/images_me/photo-m2/endoscopes-rigid-laparoscopes-70896-106867.jpg

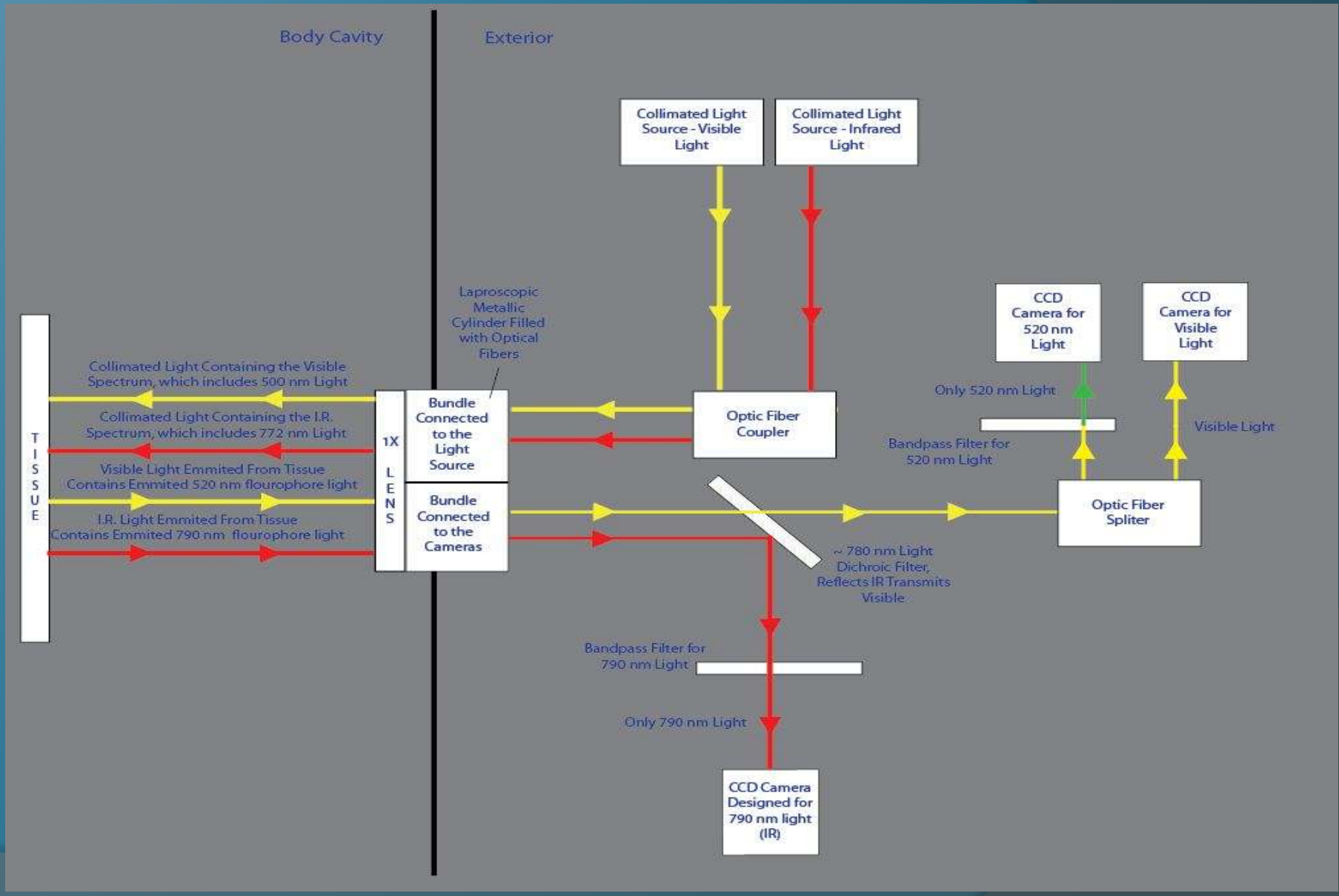
DESIGN 1-SWITCH OPEN



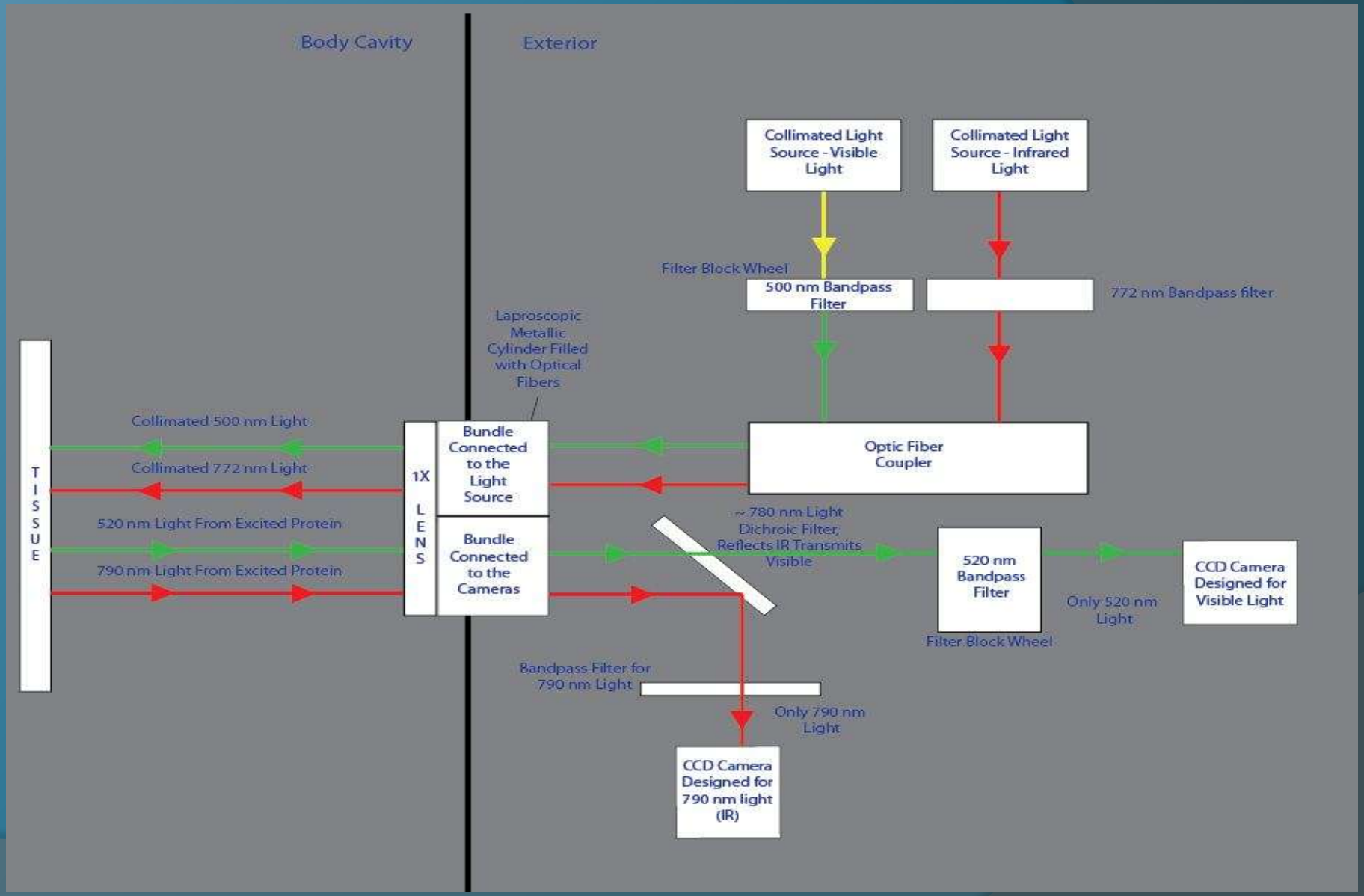
DESIGN 1- SWITCH CLOSED



DESIGN 2-NO SWITCH



DESIGN 3-FILTER WHEELS



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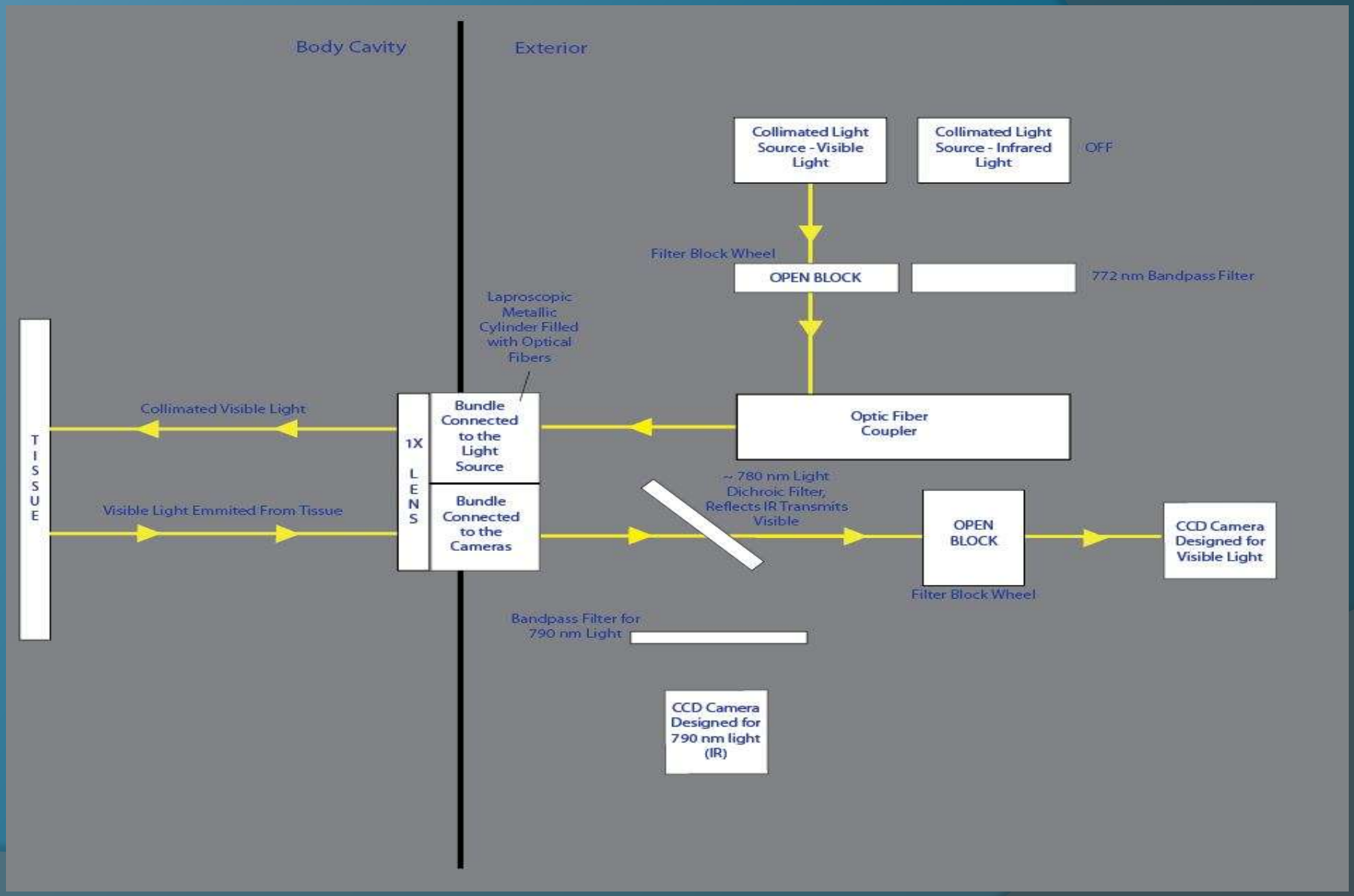

DESIGN MATRIX

Criteria	Weight	Design 1	Design 2	Design 3
Ease of Use	20	15	18	16
Ease of Fabrication	10	7	8	9
Cost	20	12	15	18
Durability	15	13	14	12
Image Processing	5	2	3	4
Image Quality	30	27	25	23
Total	100	76	83	82

FUTURE WORK

- Order parts
- Build prototype
- Write test protocol
- Write user manual
- Test device
- Make necessary modifications

REFERENCES

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- Questions?