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Development of alternative methods for in vitro studies of fish heart diseases: 3D self contracting cardiomyocytes (SCCs)

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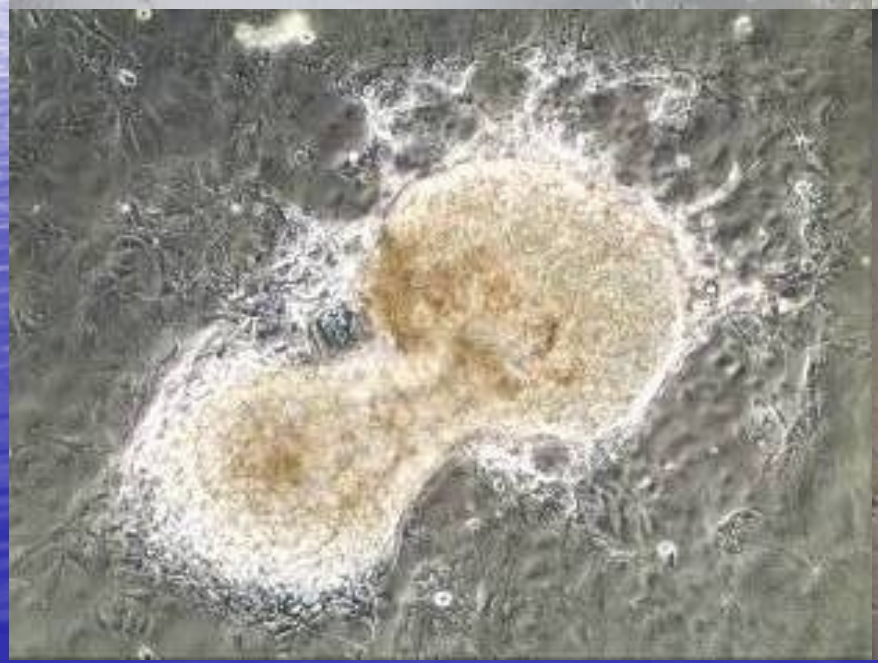
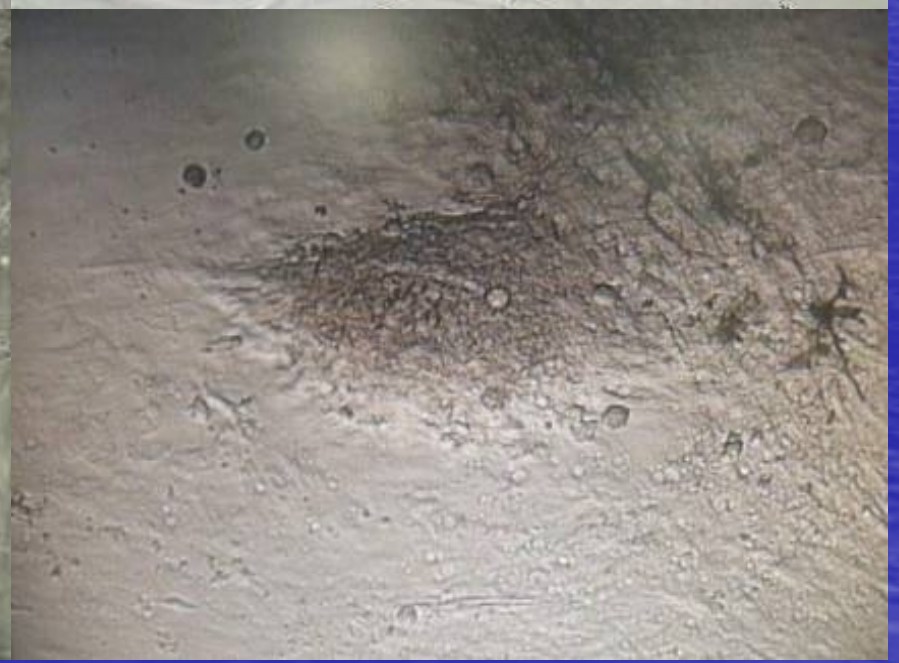
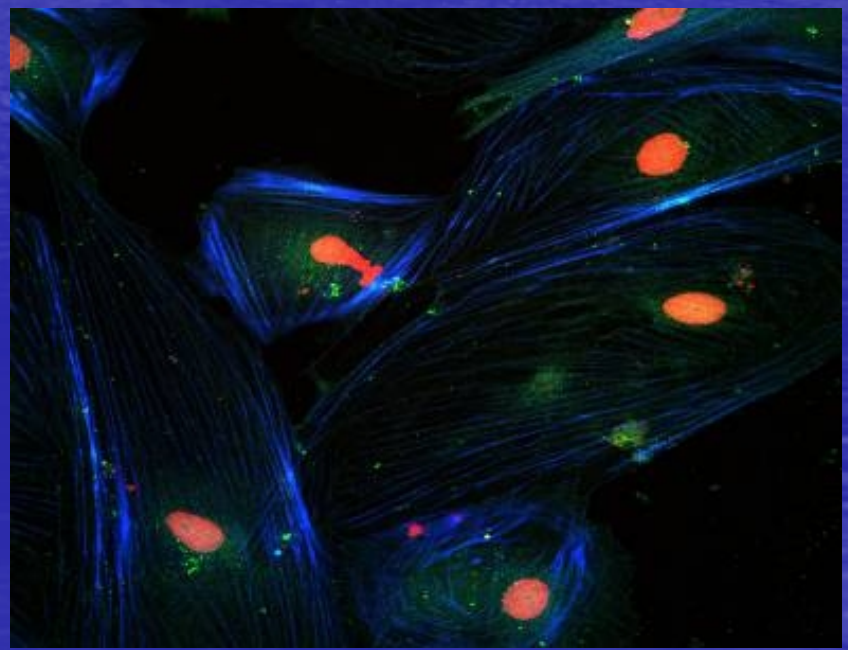




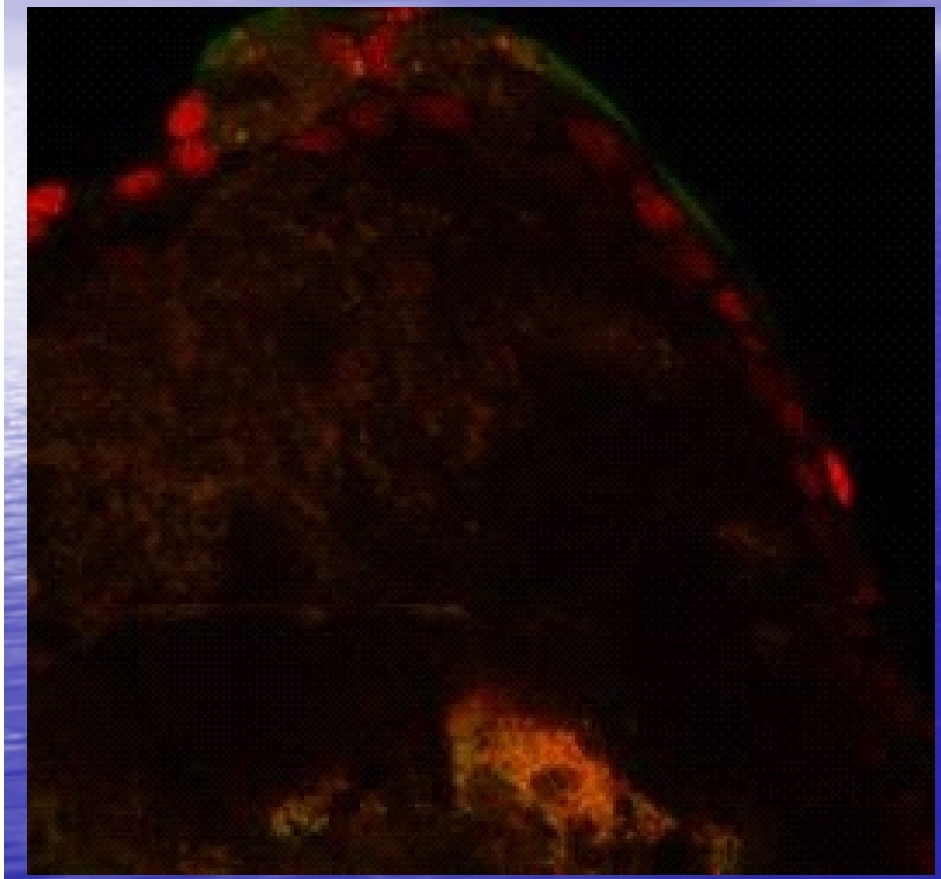
Infection trails

SCCs transferred to slide chambers prior to infection

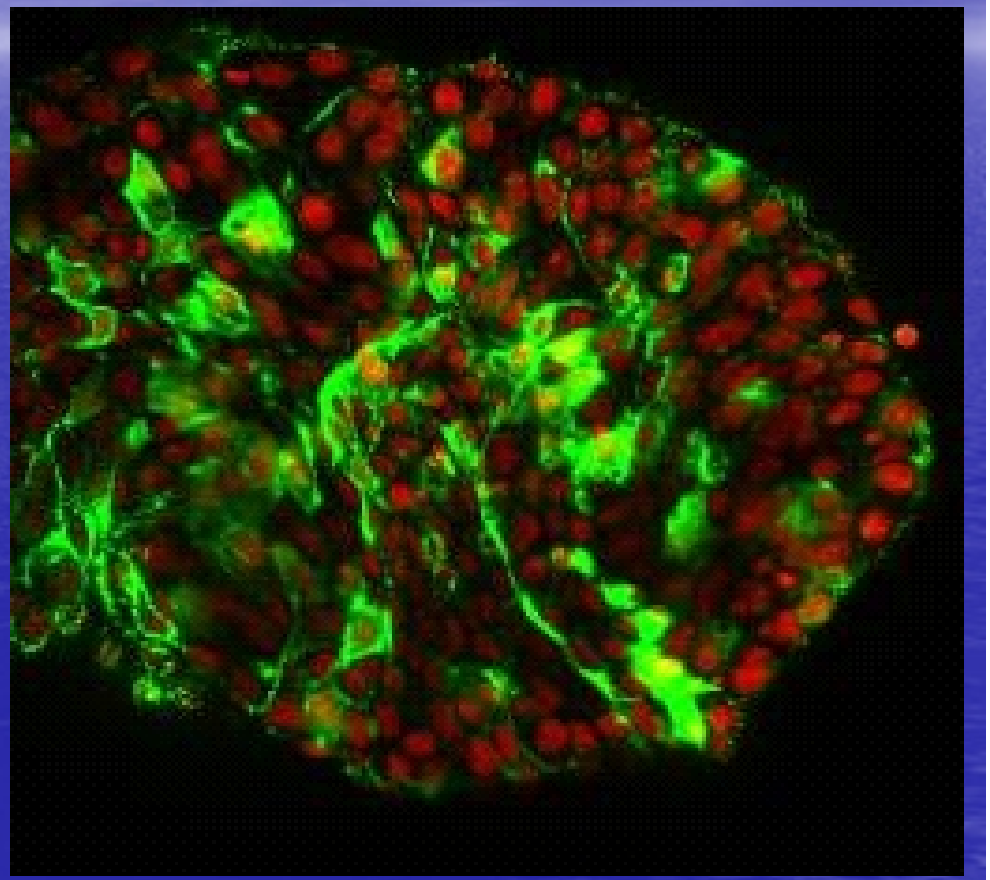
- Infections duplicates or triplicates with SAV-1 (isolates P42, F93, 4640 and F07-220) and with ISAV
- incubated at 15° alongside negative controls.
- Sampled at 7, 14 -21*dpi
- q-PCR and IF/IHC



Immunofluorescen of ISAv infected SCCs



SCC –ve control



SCC ISA +ve

q-PCR results from initial infection trials

Sample	ELF	SAV
MS 4640	30.43	35.27, 34.50, 35.29
P42 10-1	36.65	28.12, 28.19, 28.17
P42 10-2	29.43	29.04,29.14,28.94
F07-220 10-1	31.98	33.41,33.68, 33.75
F07-220 10-2	27.97	27.87, 27.85, 27.85
ISAv 10-1	28.48	33.74, 33.61, 33.90
SCC–ve control	27.53	—

Summary and on going –future work

- salmon SCCs could be developed in long term cultures
- SCCs exhibit a stable and long-term beating capacity (i.e. for several months) without external stimulation
- initial infections allowed virus localization in 3D and confirmation of infection by qPCR.

  – Further processing and analysis of performed trials
    - asses if replication within SCCs occur
    - full potential as an alternative in vitro model for fish viral infections and host pathogen interaction

Collaborators and acknowledgements

- Bianka Grunow
- Katherine Lester
- David Bruno
- Nichola McManus
- Julia Black