Preservation of female fertility using a novel model of aging, the Nothobranchius killifish
Age of first-time mothers is increasing.
Resveratrol activates NAMPT-dependent SirT1
Nothobranchius guentheri
(Redtail Killifish)
Experimental model

- Hatched: Feb./Mar. 2017
- Specialized diet begins when 10.5 and 15 weeks old
- Eggs are collected from spawning dishes 3x/week
- Sacrifice: 3.5 and 5 weeks on diet; Fish are 14 and 20 weeks old
Egg harvest
Egg collection
Fertility of RSV-fed fish continues to grow into mid-life.

Daily average egg counts over 4 weeks were obtained by counting all fertilized eggs every other day, dividing by the number of laying females, and halving the number to produce a per-day average. N=18 for each group.
RSV-fed fish conserve fecundity into mid-life

Average number of fertilized eggs per fish per day for 4 weeks; *p<0.002. N=18 for each group
NAMPT but not SirT1 protein levels increase with RSV
Older RSV-fed fish ovaries are larger and have more mature oocytes.
Conclusion

• Dietary RSV increases fecundity in N. guentheri that are in early mid-life.

• Concentrations of ovarian NAMPT were higher in RSV fed fish than for controls leading to greater availability of NAD+ for sirtuin activity.

• SirT1 protein levels at this life stage were not affected by RSV treatment.
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