

here is a line on animal polyploidy

The Urth list — 1 messages, 1 voices, 19 Mar 2002

<https://urth.darkrealm.vip/thread/urth/3050>

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maa32 — 19 Mar 2002, 03:10

This is quoted from Dr. R. Neil Jones. The link is at the bottom if you want to read the whole section yourself.

"3. Polyploidy in animals is known in flatworms, earthworms leeches, and brine shrimps, where reproduction is by parthenogenesis or hermaphrodites (as you appreciate plants are better at asexual methods of reproduction, and herein lies much of the answer). Polyploid amphibians and reptiles are common (salamanders and lizards are also parthenogentic). Some bony fish are polyploid, e.g Salmonidae, where sterility of triploids is commercially exploited - they dont spawn. Triploid oysters have been developed commercially, and this circumvents the unpalatibility associated with spawning (irrelevant but interesting). Human polyploid zygotes arise and mostly die in utero. Occasional triploid babies are born, but none survive - this would be explained by lack of genetic balance, which means not explained.

The storyline comes down to sex.

Problems in animals with sex determination mechanisms preventing polyploids arising, problems with specialised meiotic pairing of sex chromosomes (homologous only in part), and then the main thing about polyploidy is that it mucks up meiosis and one needs to reproduce by asexual or vegetative means to bypass this. Allopolyploidy is OK: i.e species hybrids giving sterile F1, then chromosome doubling to give pairing partners within each genomic set. Difficult to see such hybrids arising between cows and sheep. I suppose there are some developmental complexities in animals which also cause a problem.

I dont know about yeast.

I do not think there is any physiological block to polyploidy in animals."

<http://iubio.bio.indiana.edu/R22262-25664-/news/bionet/metabolic-reg/9804.newsm>

Hope this clarifies. Note that polyploidy most often occurs with hybrids. And that is what we are talking about here.

Marc