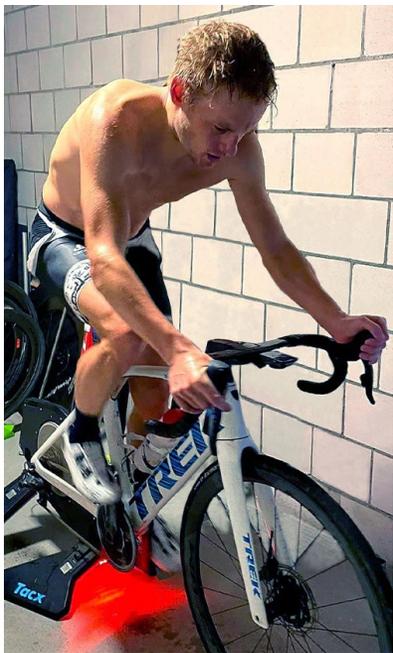
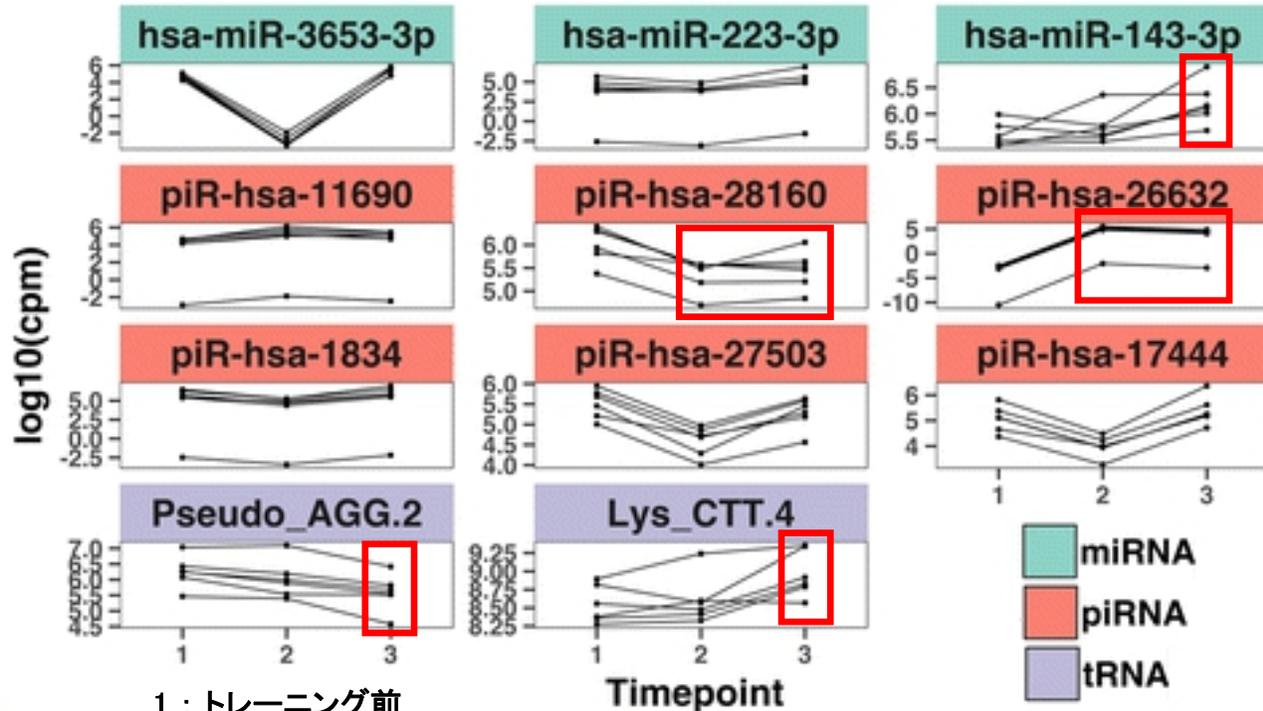


あなたの努力は子孫にしっかりと反映される



男性も女性も、生殖細胞にはDNAだけでなく、種々のRNAが存在している。右の結果は男性のものであるが、6週間の持久カトレニングによって、各種のsmall RNAの発現量が増加し、そのまま維持されるものがある(例:右図にて赤枠で囲んだもの)。これが、子どもの持久力を高めることになる。



(出典: Clinical Epigenetics volume 10, Article number: 12 (2018))

(C) Inner nucleus
RNAs involved in the chromatin structure

- lncRNAs: involved in chromatin remodeling [reviewed in 41]
- miRNAs: targeting histones, promoter/TSS sites, and TEs [reviewed in 55]
- piRNAs: bind DNA to block TEs [reviewed in 88]
- siRNAs: maintenance of heterochromatic DNA [reviewed in 81]

(D) Midpiece
Mitochondrial RNAs: spermatogenesis [56,60]

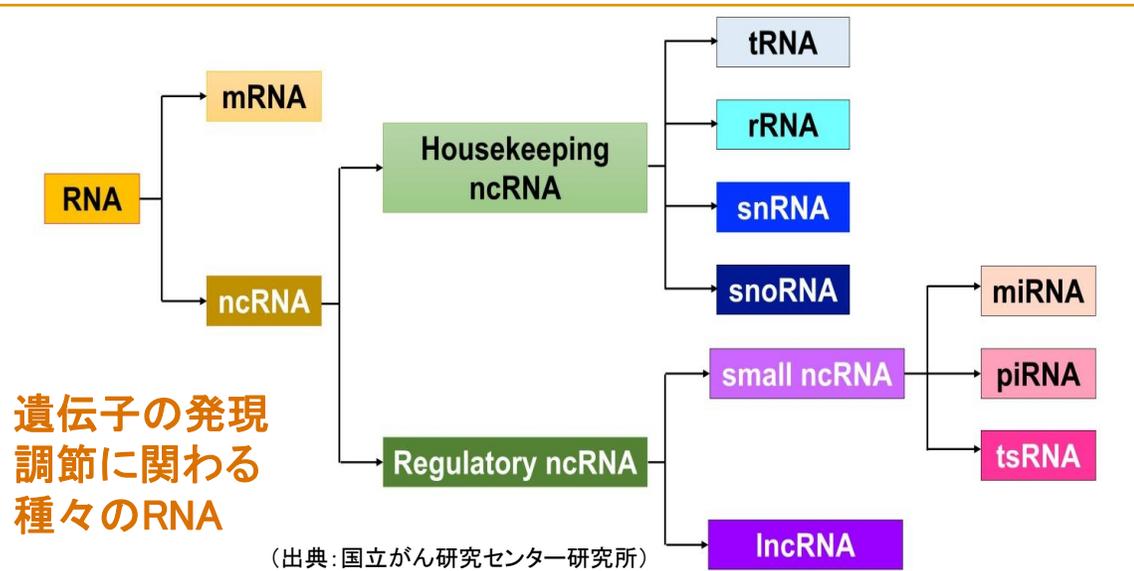
(A) Outer membrane
Contain exogenous RNAs or RNAs extruded from the inner nucleus during sperm maturation

- lncRNAs: regulation of gene expression [reviewed in 55]
- miRNAs: post-transcriptional regulation [44]
- piRNAs: protection against TEs [reviewed in 55]
- tRNA fragments: modified by metabolic states [5]
- rRNAs fragments: spermatogenesis [51,56]

(B) Outer nucleus
Contain RNAs extruded from the inner nucleus during sperm maturation

- lncRNAs: regulation of gene expression [reviewed in 55]
- miRNAs and pri-miRNAs: post-transcriptional regulation [reviewed in 55]

(出典: Population, roles, and plasticity of sperm RNAs, 2018, Vol. 99, No. 1)



遺伝子の発現調節に関わる種々のRNA

(出典: 国立がん研究センター研究所)

<作成: stnv基礎医学研究室>

*This image is not to scale