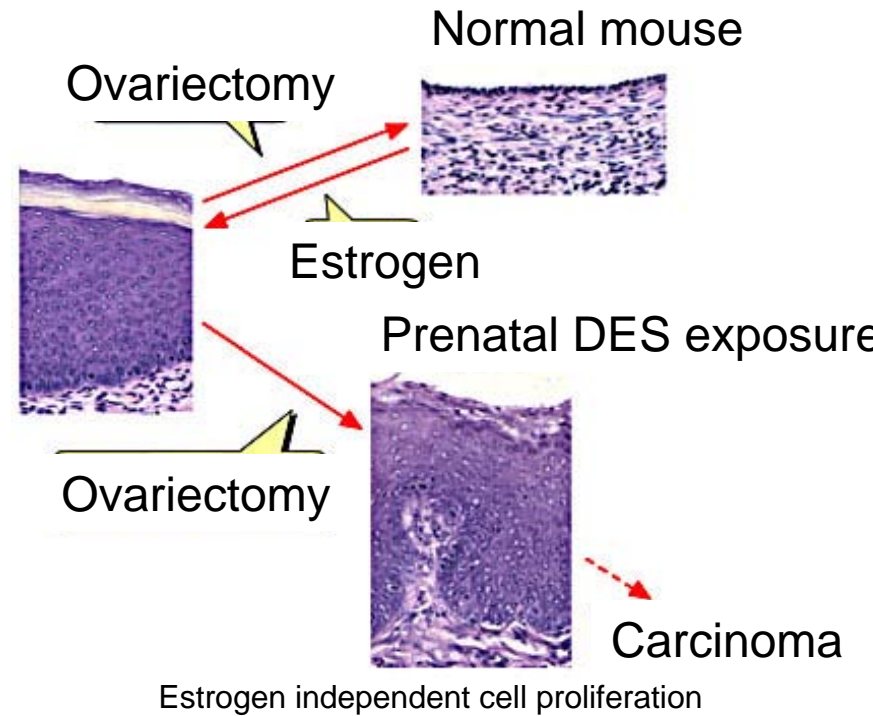


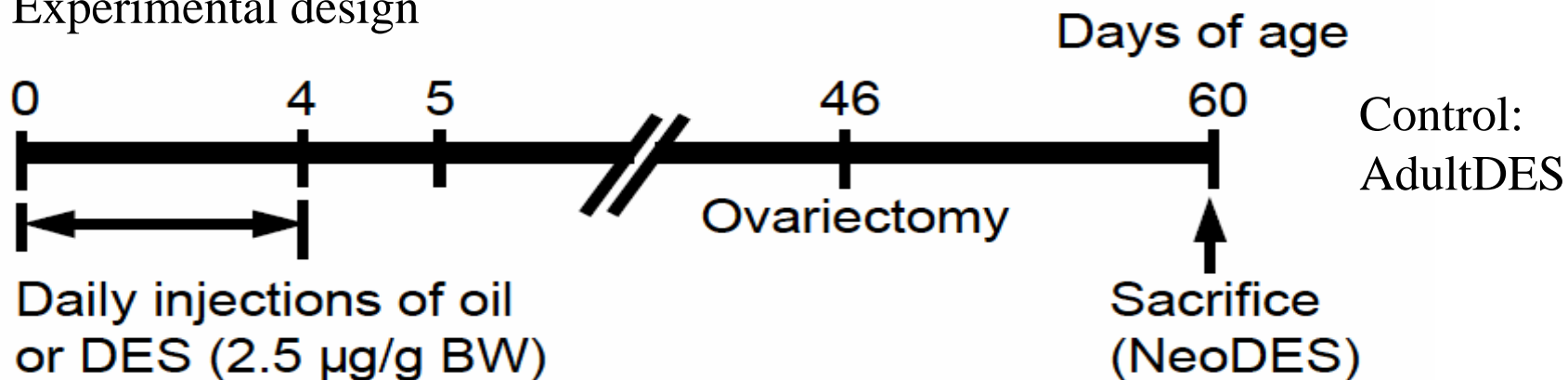
# New approaches to endocrine disruptor issue

- Toxicogenomic approach  
– Estrogen and chemicals  
– Tissue specificity  
– **Temporal specificity**  
Mouse
- Ecotoxicogenomics  
– Comparative approach  
– Example of TBT and other chemicals  
Water flea  
Daphnia magna  
ミジンコ
- Direct target identification  
– Old but new approach  
Human

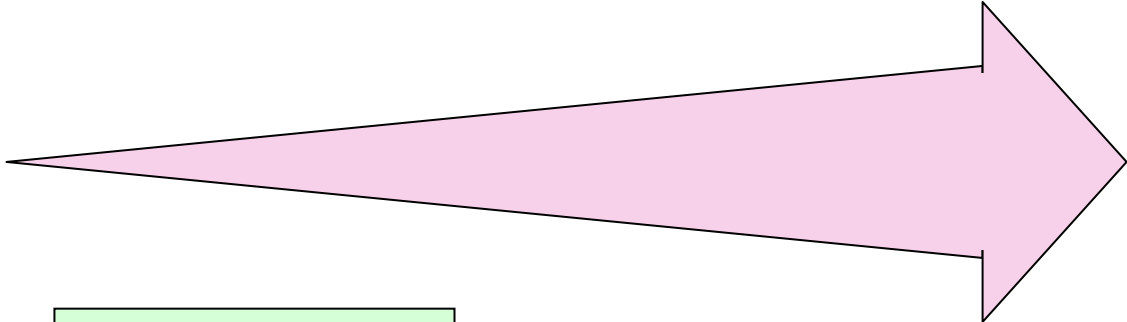
# Long term effect of neonatal exposure of estrogen



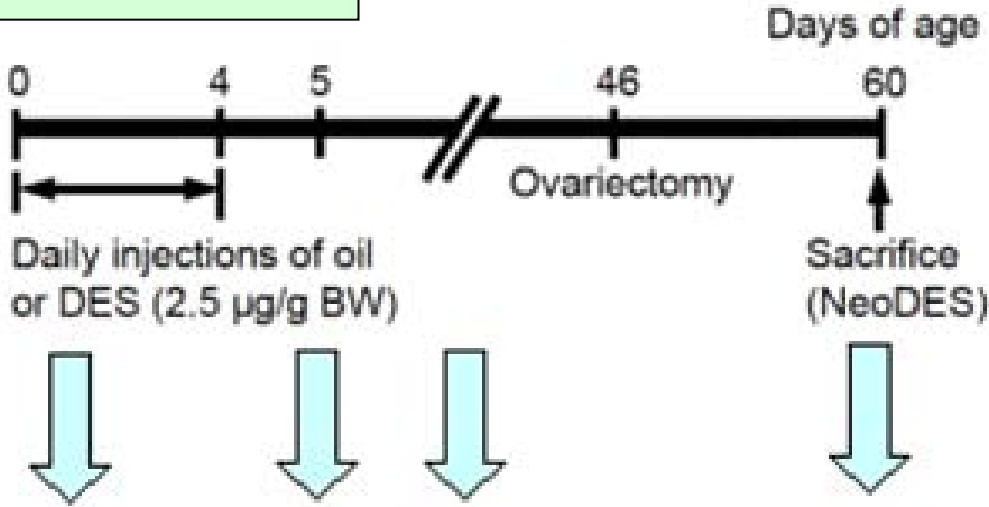
## Experimental design



Estrogen independent cell proliferation



Critical window



Gene expression profile  
Finding out the responsible gene

# Toxicogenomic approach

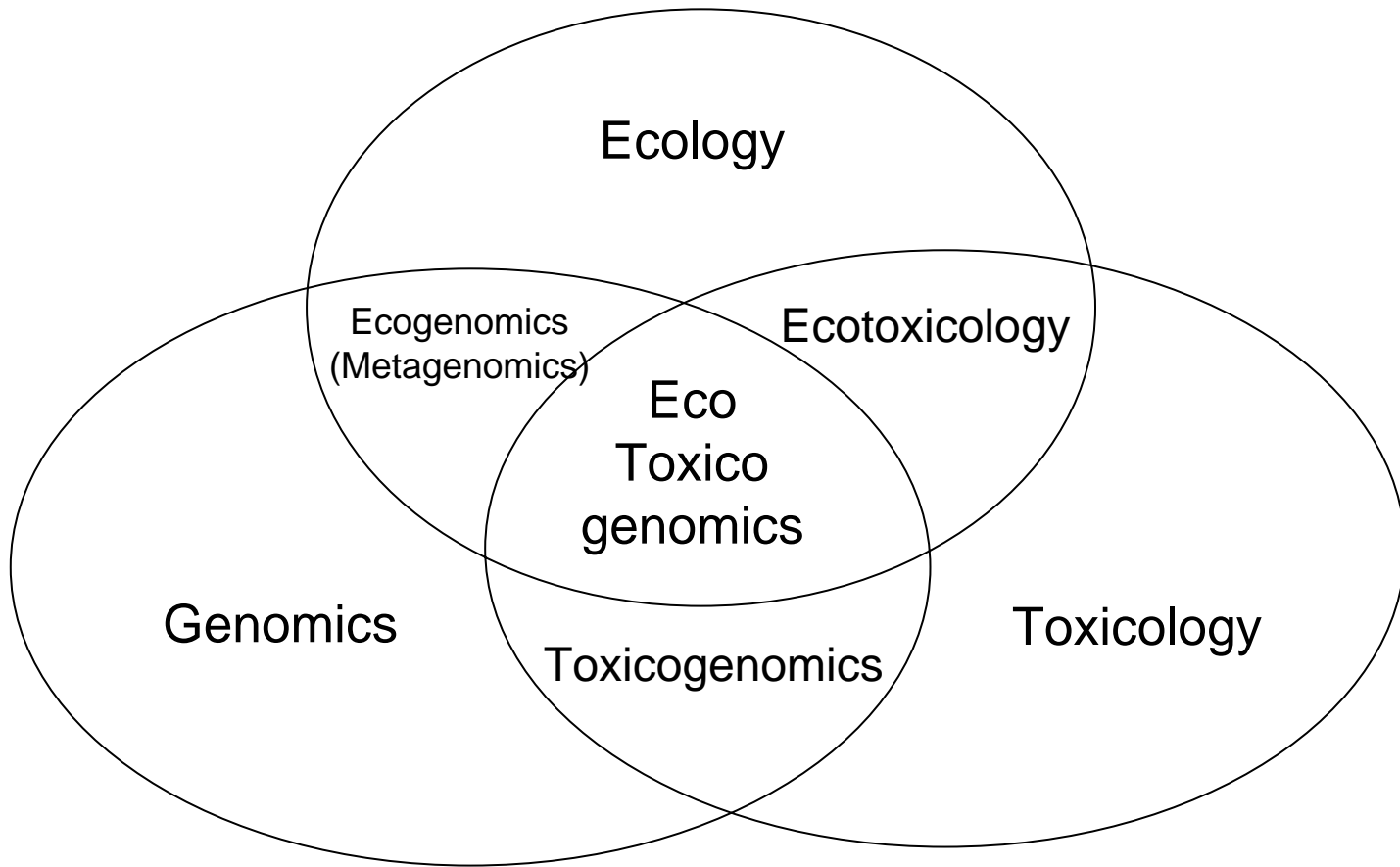
Mouse array

- Estrogenic activities could be evaluated by DNA microarray
- Pathways (and genes ) activated by estrogen could be identified.
- Effects of chemicals are different among tissues
- Effects of estrogen (and chemicals) are different among maturation stages

# New approaches to endocrine disruptor issue

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# Ecotoxicogenomics



# Ecotoxicogenomics

- The study of gene and protein expression in non-target organisms that is important in responses to environmental toxicant exposures
- Prediction of toxicant responses across the very broad diversity of the phylogenetic groups present in ecosystems
- Estimation of how changes at one ecological level or organization will affect other levels

*J.R. Snape et al. / Aquatic Toxicology 67 (2004) 143–154*

- Find out of common mechanisms underlying among different species (Comparative toxicogenomics)