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***The apple snail *Pomacea canaliculata*: a new and alternative animal model for testing innovative nanobiomaterials.***

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The development and testing of new nanobiomaterials are strictly associated with animal experimentation. The utilization of animal models is subjected to the Directive 2010/63/EU and the Italian act n. 26/2014, that severely regulate experimental protocols on vertebrates and living cephalopods. Most invertebrate models present developmental, anatomical and physiological drawbacks that limit their usage in nanobiomaterial-based experimental protocols. In the last year we have been successfully using the golden apple snail *Pomacea canaliculata* for preliminary testing of nanobiomaterial components in several organs, like kidney and the heart. The size and longevity of *P. canaliculata* are close to those of rodents, allowing an easy manipulation during experiments for safety and accumulation. The absence of larval stages and metamorphosis allows for testing on embryonic development and during snail growth. The presence of discrete hematopoietic districts and the ability of regenerating sensory organs during adulthood also permit to study nanobiomaterial actions on cell replication and differentiation. *P. canaliculata* genome has been released and several organ-specific transcriptomes and proteomes are available, also posing the fundamentals for studying the exposure of nanobiomaterial effects at single-cell level. Our first observations qualify the apple snail *P. canaliculata* as an innovative and promising animal model which can be effectively adopted at pre-clinical level as a replacement for rodent *in vivo* study.