

doi: <http://dx.doi.org/10.7124/bc.0009F4>

R-1. Structural studies of PML nuclear bodies in polyomavirus infected cells

Boris Ryabchenko and Jitka Forstova

Charles University, Faculty of Science, Biocev,
Prague, Czech Republic
ryabcheb@natur.cuni.cz

ProMyelocytic Leukemia Nuclear Bodies (PML NBs) are distinct dynamic nuclear substructures (approx. 1 micron in diameter) implicated in different physiological and pathological cellular processes, including virus infection. While large viruses, e.g. herpesviruses cause their disruption, smaller DNA viruses, as papilloma- or polyomaviruses, realize parts of the reproduction cycle in their close proximity. Previously, we found that Mouse polyomavirus (MPyV) infection causes multiplication and enlargement of PML NBs. During late phases of infection, the integrity and morphology of PML NBs are visibly altered. In addition, we observed the accumulation of MPyV virions around and inside of PML NBs. The aims of our research are: 1. To find whether replication of MPyV genomes itself or rather assembly of virions is responsible for altering the integrity and morphology of PML NBs. 2. To reveal the process of multiplication of PML NBs in infected cells. 3. To visualize the interaction of viral structural and regulatory proteins with PML NBs. We found that replication of mutated MPyV, capable of genome replication and production of all regulatory proteins, is sufficient to alter the morphology of PML NBs, although it lacks ability to produce structural proteins. Live cell

microscopy revealed that in infected cells, PML NBs are highly dynamic structures that assemble from soluble PML NBs' proteins as well as by fusion or fission of pre-existing nuclear bodies. Using structured illumination microscopy (SIM) and stochastic optical reconstruction microscopy (STORM), we observed the major structural protein of MPyV VP1, - to be located inside PML NBs, while the regulatory large T antigen (bound to replicating MPyV genomes) was located by the surface of PML NBs.

doi: <http://dx.doi.org/10.7124/bc.0009F5>

S-1. The dispersal of ribosomal gene sequences in the karyotype of *Coturnix japonica*

Alsu Saiftdinova^{1,2}, Svetlana Galkina³, Maria Kulak³, Valérie Fillon⁴, Valeria Volodkina³, Olga Pavlova^{2,5}, Elena Gaginskaya³

¹ Herzen State Pedagogical University of Russia, Saint Petersburg, Russia; ² International Centre of Reproductive Medicine, Saint Petersburg, Russia; ³ Saint Petersburg State University, Saint Petersburg, Russia; ⁴ National Institute of Agricultural Research, Toulouse, France; ⁵ Beagle Ltd., Saint Petersburg, Russia
saiftdinova@mail.ru

Numerous copies of rDNA genes form nucleolar organizer regions (NORs) on chromosome and give rise to the interphase nucleoli. Bird species commonly have a single pair of the NOR bearing chromosomes in the karyotype (Schmid *et al.*, 1982). Japanese quail is an exception and has three pairs of chromosomes with active NOR (McPherson *et al.*, 2014).