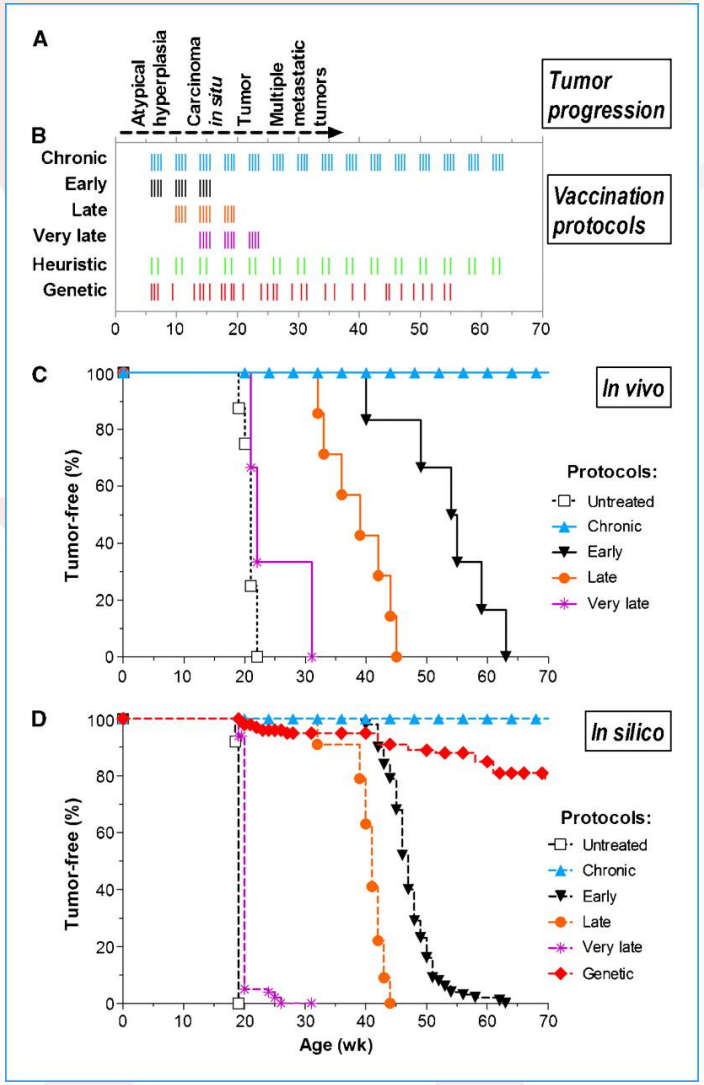
In silico trials-Cancer Vaccines

Prof. Arianna Palladini, Ph.D.
Molecular Medicine Department & IRCCS Fondazione Policlinico San Matteo

- **Goal**: cancer vaccines to prevent immune checkpoint inhibitor-mediated resistance in patients with Non-Small Cell Lung Cancer
- **Clinical need**: to evaluate patient evolution by simulation (resistance, iperprogression, long-response etc.) and new therapies
- **Input data**: tumor-gene expression (NGS), tumor/organoid-imaging (CT, MR, Micro-CT), peripheral immunoscore (PBMC)
- **Output data**: Patient-derived Digital Avatar (PDDA)/Digital Twin –in silico-trial

Problem-pitch

- Models:
  - Agent-based models or function-based models; predictive algorithms
- Data:
  - Tumor: measurement, radiomic data, gene expression
  - PIS: immune population, cytokines
  - Functional data on T cell activity
  - Functional data on target activity
- Multidisciplinary Consortium



doi: 10.1158/0008-5472.CAN-10-0701

UNIVERSITÀ DI PAVIA