

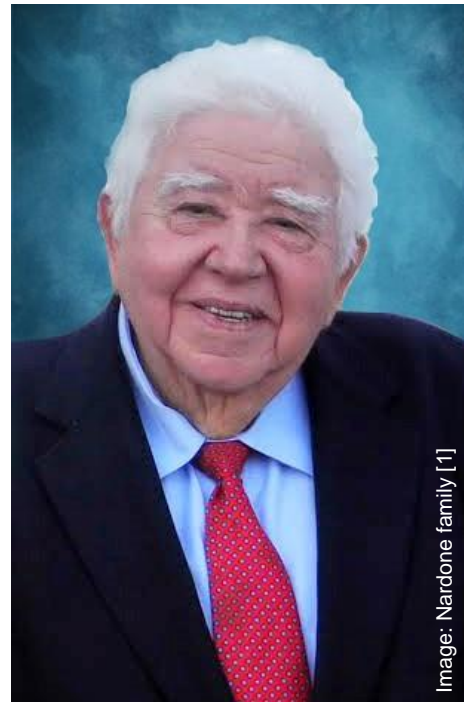


Roland Nardone – a Tribute

Roland Nardone passed away on 20 June 2018 at the age of 90 [1]. Roland was a passionate cell culture scientist and educator who will be much missed by his family, friends, and colleagues.

Roland was awarded his PhD at the age of 23. An early project with Edwin V. Gaffney in the 1960s resulted in the discovery that mycoplasma contamination causes inhibition of DNA synthesis [2]. Roland went on to become a Professor of Biology at Catholic University of America (CUA), a position he held for over 50 years. However, his early work on mycoplasma contamination sparked a lifelong interest in cell culture problems that would last well into his retirement.

In 2005, at an age when most scientists are planning to enjoy a quiet life, Roland was taking on a new cause [3]. His self-described “swan song” would be to call for action to address the widespread cross-contamination of cell lines used in biomedical research.



At that time, Roland delivered a yearly lecture on the topic of cell line cross-contamination. Drawing on many “sad tales of invalidated research and squandered millions” [3], Roland developed a white paper on the topic that offered four concrete solutions [4]:

1. Government and private funding agencies should require cell line authentication as a condition for the award of grant and contract funds.
2. Key scientific journals should require cell line authentication as a condition for publication.
3. Professional societies should (a) endorse the policies pertaining to grants and publications and (b) sponsor conferences, workshops and/or training activities to facilitate the adoption of cell line authentication standards.
4. Laboratory and academic department heads should ensure that staff members are cognizant of the problem of cross-contamination and the required quality control measures in response.

These four recommendations would trigger a culture change in biomedical research.

In response to the white paper, the *International Journal of Cancer* moved to encourage and later require authentication testing as a condition of publication – the first of many journals to do so [5].

A panel of 20 scientists sent an open letter that called for further action from the US Department of Health and Human Services [3]. Action was slow to follow, and further letters were sent. For example, in 2016 Roland published correspondence in *Nature* on the need to authenticate xenograft models [6].

Roland was invited to open an NIH workshop dedicated to reproducibility and rigor in cell-based research in 2015 – a tribute from the workshop organizers to his influence and impact. NIH finally incorporated requirements for authentication of cell lines into their funding applications in 2016 [7].

Roland described this story as his “Snail Glide” – a process of incremental change [8]. But to many of his colleagues, Roland’s work shed a beacon of light on the stormy sea of cross-contaminated cell lines. We will miss our lighthouse and the light he shed on this important cell culture problem.

References: [1] <https://www.collinsfuneralhome.com/nardone-roland-m>. [2] Nardone et al. (1965) *Science* 149: 1100. [3] Nardone (2008) *Biotechniques* 45: 221. [4] Nardone (2007) *Cell Biol Toxicol* 23: 367. [5] Fusenig et al. (2017) *PLoS Biol* 15: e2001438. [6] Nardone et al. (2016) *Nature* 532: 313. [7] <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-16-011.html>. [8] http://www.cellbankaustralia.com/index.php?dispatch=news.view&news_id=33.