

Tribute for Prof. Tatiana Bani-Sacchi

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I am glad to sketch Prof. Tatiana Bani-Sacchi's outstanding contribution to relaxin research, which has opened new views on the biological effects and therapeutic perspectives of this hormone, with special reference to the cardiovascular field.

I first met her about 30 years ago, when she was a young Full Professor of Histology in the Florence University Faculty of Medicine, yet affirmed as an experienced researcher in the endocrinological field. Despite her initial reluctance, motivated by her numerous teaching and research commitments, I succeeded in hooking her to the study of the emerging field of relaxin, which then became and remained her major interest throughout her subsequent scientific career.

Tatiana Sacchi, married Bani, graduated in Biological Sciences at the Florence University, Italy, in 1959. One year later, she began assistant researcher at the Laboratory of Electron Microscopy led by Prof. Enrico Allara, where she refined her uncommon skills in the ultrastructural analysis of mammalian tissues. When Prof. Allara moved to the direction of the Institute of Histology of the Florence University Faculty of Medicine, he offered a position to his most promising pupil, thus Tatiana continued to work in the field of morphology and electron microscopy. As a graduated technician, she started her scientific career working on endocrine and exocrine glands in hibernating animals, intended as models of physiological tissue response to hypoperfusion and hypothermia. She then applied herself to the study of pancreatic islets in health and disease, using both animal models and pathological samples taken from patients suffering for pancreatic endocrine disorders and tumors. Till '80s, this matter was her main field of interest. Her numerous publications allowed her to earn the position of Assistant Professor and, in 1980, Full Professor of Histology and Embryology. She retired in 2000, after having authored more than 200 full papers, taught Histology and Embryology to thousands of medical students of the Florence School of Medicine, and tutored several post-graduate PhD student in Morphology and Morphogenesis.

Tatiana's first publications on relaxin were in the 1970s with studies on the histological changes induced by the administration of porcine relaxin on the mouse mammary gland and mammary equivalent target organs, such as the pigeon crop sac. These pioneering studies gave a substantial contribution to identify relaxin as a *bona fide* mammatropic/trophic hormone. While studying the mammary gland she noticed that relaxin, besides causing a substantial growth of the glandular parenchyma, stroma and fat pad, also induced a striking dilatation of the mammary microvessels.

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Of note, this effect was specific of relaxin and, at variance with its mammatrophic actions, did not require any estrogen priming. At the beginning, we supposed that the vascular action of relaxin could depend on the release of vasoactive mediators, such as histamine. On the contrary, the experimental data indicated that, paradoxically, relaxin appeared to decrease histamine release from mammary mast cells. This observation remained substantially unexplained for several years, namely till the discovery that endothelial cells produce the potent vasodilator nitric oxide. Our coworker and friend Emanuela Masini, an experienced cardiovascular pharmacologist who participated in early studies on nitric oxide performed at the William Harvey Institute in London, raised the hypothesis that relaxin could exert its vascular effects through nitric oxide. This was the winning idea. Using an *ex vivo* heart model, Tatiana and her team could provide first demonstration that relaxin promotes coronary vasodilatation by up-regulating the endogenous generation of nitric oxide (Bani Sacchi et al., 1995), a finding that has been repeatedly confirmed by her and others' successive studies. This notion can also explain the apparent paradox of histamine inhibition, as nitric oxide was found to be a potent inhibitor of mast cells (Masini et al, 1994). These key achievements have provided the background to Tatiana's research for the next 10 years: in this period, our group have offered evidence that relaxin, by stimulating endogenous nitric oxide generation by its target cells, can counteract ischemia/reperfusion-induced injury in heart and gut, blunt allergen-induced asthma-like reaction and cardiac anaphylaxis, promote dilation of liver sinusoids and causes inhibition of uterine and gastrointestinal smooth muscle contractility. These novel achievements on the physiological and pharmacological actions of relaxin have substantially contributed to delineate the possible therapeutic profile of this exciting hormone, particularly in the field of cardiovascular disease (Bigazzi et al 2001).

During her career, Prof. Tatiana Bani-Sacchi has published more than 50 peer-reviewed papers on relaxin. Now in retirement, Tatiana has eventually had enough free time to develop her hitherto hidden talent: painting. Being used to studying, she has rapidly mastered the methods and rules of traditional byzantine icon painters with outstanding results.

References

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