

41. Tolosano E, Fagoonee S, Morello N, Vinchi F, Fiorito V: Heme scavenging and the other facets of hemopexin. *Antioxid Redox Signal* 2010; 12:305–20
42. Hod EA, Zhang N, Sokol SA, Wojczyk BS, Francis RO, Ansaldi D, Francis KP, Della-Latta P, Whittier S, Sheth S, Hendrickson JE, Zimring JC, Brittenham GM, Spitalnik SL: Transfusion of red blood cells after prolonged storage produces harmful effects that are mediated by iron and inflammation. *Blood* 2010; 115:4284–92
43. Buehler PW, D'Agnillo F, Schaer DJ: Hemoglobin-based oxygen carriers: From mechanisms of toxicity and clearance to rational drug design. *Trends Mol Med* 2010; 16:447–57
44. Buehler PW, D'Agnillo F: Toxicological consequences of extracellular hemoglobin: Biochemical and physiological perspectives. *Antioxid Redox Signal* 2010; 12:275–91
45. Poli G, Schaur RJ, Siems WG, Leonarduzzi G: 4-hydroxynonenal: A membrane lipid oxidation product of medicinal interest. *Med Res Rev* 2008; 28:569–631
46. Yu B, Bloch KD, Zapol WM: Hemoglobin-based red blood cell substitutes and nitric oxide. *Trends Cardiovasc Med* 2009; 19:103–7
47. Nagasaka Y, Fernandez BO, Garcia-Saura MF, Petersen B, Ichinose F, Bloch KD, Feelisch M, Zapol WM: Brief periods of nitric oxide inhalation protect against myocardial ischemia-reperfusion injury. *ANESTHESIOLOGY* 2008; 109: 675–82
48. Minneci PC, Deans KJ, Zhi H, Yuen PS, Star RA, Banks SM, Schechter AN, Natanson C, Gladwin MT, Solomon SB: Hemolysis-associated endothelial dysfunction mediated by accelerated NO inactivation by decompartmentalized oxyhemoglobin. *J Clin Invest* 2005; 115:3409–17
49. Vlaar AP, Hofstra JJ, Levi M, Kulik W, Nieuwland R, Tool AT, Schultz MJ, de Korte D, Juffermans NP: Supernatant of aged erythrocytes causes lung inflammation and coagulopathy in a “two-hit” in vivo syngeneic transfusion model. *ANESTHESIOLOGY* 2010; 113:92–103

## ANESTHESIOLOGY REFLECTIONS FROM THE PIERRE VIARS MUSEUM

### Radium and Thorium Applications for the General Public: Unexpected Consequences of the Discovery from Pierre and Marie Curie



After the discoveries of ionizing radiation (by von Röntgen and Becquerel) and radium and thorium by Pierre and Marie Curie in France, there was real enthusiasm for these radioactive elements and the general public alike. Radium was considered beneficial at low dose. Many applications were proposed for healthy and hygienic purposes: radium and thorium were introduced in face cream against wrinkles (were faces fluorescent in the night?), in lipstick (for hot lips?), in drugs for bronchitis. Manufacturers even produced a domestic fountain providing radioactive water to drink and a radium-containing coffeepot with great commercial success.

*Jean-Bernard Cazalaà, M.D., President of Club d'Histoire de l'Anesthésie et de la Réanimation (French Association for the History of Anesthesiology and Critical Care), France ([www.char-fr.net](http://www.char-fr.net)), and Musée Viars, CHU Pitié-Salpêtrière, Paris, France.*