

## **Global Analysis of Steady-State Energy Transfer Measurements in Membranes: Resolution of Structural and Binding Parameters**

**Yegor A. Domanov,<sup>1,3</sup> Galina P. Gorbenko,<sup>1</sup> and Julian G. Molotkovsky<sup>2</sup>**

*Received July 29, 2003; accepted September 29, 2003*

---

A method has been developed allowing structural and binding parameters to be recovered by global analysis of two-dimensional array of steady-state RET data in the special case where energy acceptors distribute between aqueous and lipid phases while donors are embedded in the membrane at a known depth. To test the validity of this approach, correlation and error analyses have been performed using simulated data. To exemplify the method application to the membrane studies, energy transfer from anthrylvinyl-labeled phosphatidylcholine incorporated into mixed phosphatidylcholine/cardiolipin unilamellar vesicles to heme group of cytochrome c is analyzed.

---

**KEY WORDS:** Resonance energy transfer; membrane systems; global analysis; structural and binding parameters.