**FLUOROMAX® Multiwavelength Capability: In-Vivo Measurement of Ca²⁺, Na⁺, pH, and Membrane Potential**

**Introduction**

Simultaneously monitoring the levels of relevant metabolites and cell parameters is necessary to properly assess the effectiveness of drugs on living cells. The FLUOROMAX® spectrofluorometer allows the user to monitor up to eight wavelength-pairs of emission and excitation wavelengths. Coupling this capability with the proper probes can produce a real-time analysis of unfolding biological processes.

**Results**

One research application that used simultaneous observation of multiple wavelength-pairs was performed by M. Kimura, et al., at the University of Medicine and Dentistry of New Jersey.¹ Their evaluation of Thapsigargin, a hypertensive drug, was performed on a FLUOROMAX® spectrofluorometer. The results demonstrated that the effect of the drug in human platelets was not limited to the elevation of the Ca²⁺ but produced substantial changes in the overall ionic balance.

Figure 1 shows a sample screen display taken from DATAMAX® (FLUOROMAX® software for Windows™). Note how DATAMAX® makes the monitoring of up to eight wavelength-pairs a simple matter of selection.

![Figure 1. Screen shot from DATAMAX® software.](image)

**Conclusion**

FLUOROMAX®, with DATAMAX® software, allows the user to monitor wavelength-pairs to characterize processes in living cells and other biological systems. The measurement is feasible in real time because of the FLUOROMAX® spectrofluorometer’s ability to scan rapidly (up to 200 nm s⁻¹).