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Letter to the Editor

The letters section will carry constructive comment on work published in the journal, brief communications regarding research and letters containing any' information relevant to or of interest to workers in the field of nanobiology.

Sir: At present when the entire world has been captivated by the Langmuir - Blodgett rush, the name of Schaefer is kept in the background although he, together with Langmuir, in 1937 - 39 made and studied the first protein films on water surfaces. After half a century we managed (repeating practically all the ideas of the first Langmuir - Schaefer work) to obtain on the air - liquid interface the films of bacterial luciferase, which is an interesting representative of the proteins family.

Furthermore we measured the activity distribution within the Langmuir trough depth and transferred luciferase with its native structure preserved on to solid silicon.

It seems to me that such an advantage of luciferases, i.e. the possibility of remote express detection in monolayers, will let us make an advanced step in understanding of structure/function relation of proteins in Langmuir films and develop useful methods of luciferase biosensors and biochips nanomolecular architecture. There can be no doubt that such particulate luciferase behaviour will allow us to create a new scientific basis for understanding surface active properties of other proteins and polyenzymatic systems. It is possible that after such discoveries nanobiology, molecular electronics and supramolecular photonics will stop wasting time and begin to integrate biofeatures in their designs. We fully agree with the postulate that the first publication of a new result does not mean the end of the work and I would like to initiate by this letter an independent test of our results on bacterial luciferase amphiphilic properties in other laboratories. We would like to draw the scientists dealing with this problem into international cooperation within the 'Nanobiological molecular architecture' project which includes the following parts:

1. Protein and genetic engineering part which includes deeper understanding of bioluminescence physical mechanism and structure/function relation.

2. Molecular design of luciferase biosensors with desired result - obtaining solid-state bioluminescence and polyfunctional intelligent biosensors (PIBs).

3. Molecular architecture of luciferase biochips where unusual functional properties of this chemical signal into light transducer will allow us to create new molecular chemiluminescent devices based on luciferase chemical models.

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