

Photonic emission from blood: a signature of vital activity.

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ANNUAL INTERNATIONAL CONFERENCE

Saratov Fall Meeting XXVI

**ENDOGENOUS BIOPHOTONICS: ULTRA-WEAK
LUMINESCENCE FROM BIOLOGICAL SYSTEMS**

(Dedicated to the centenary of A.G. Gurwitsch's discovery)

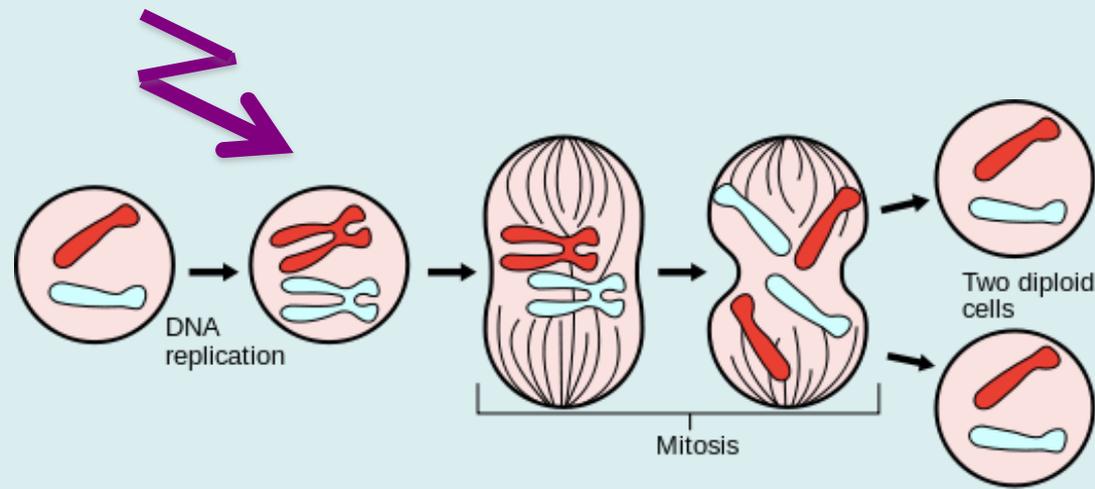
26-30 September, 2022



Alexander Gurwitsch
(1874-1954)

Ability of all living systems to emit ultra-low photons and to react to external irradiation with such photon fluxes was discovered in 1922 by Alexander Gurwitsch.

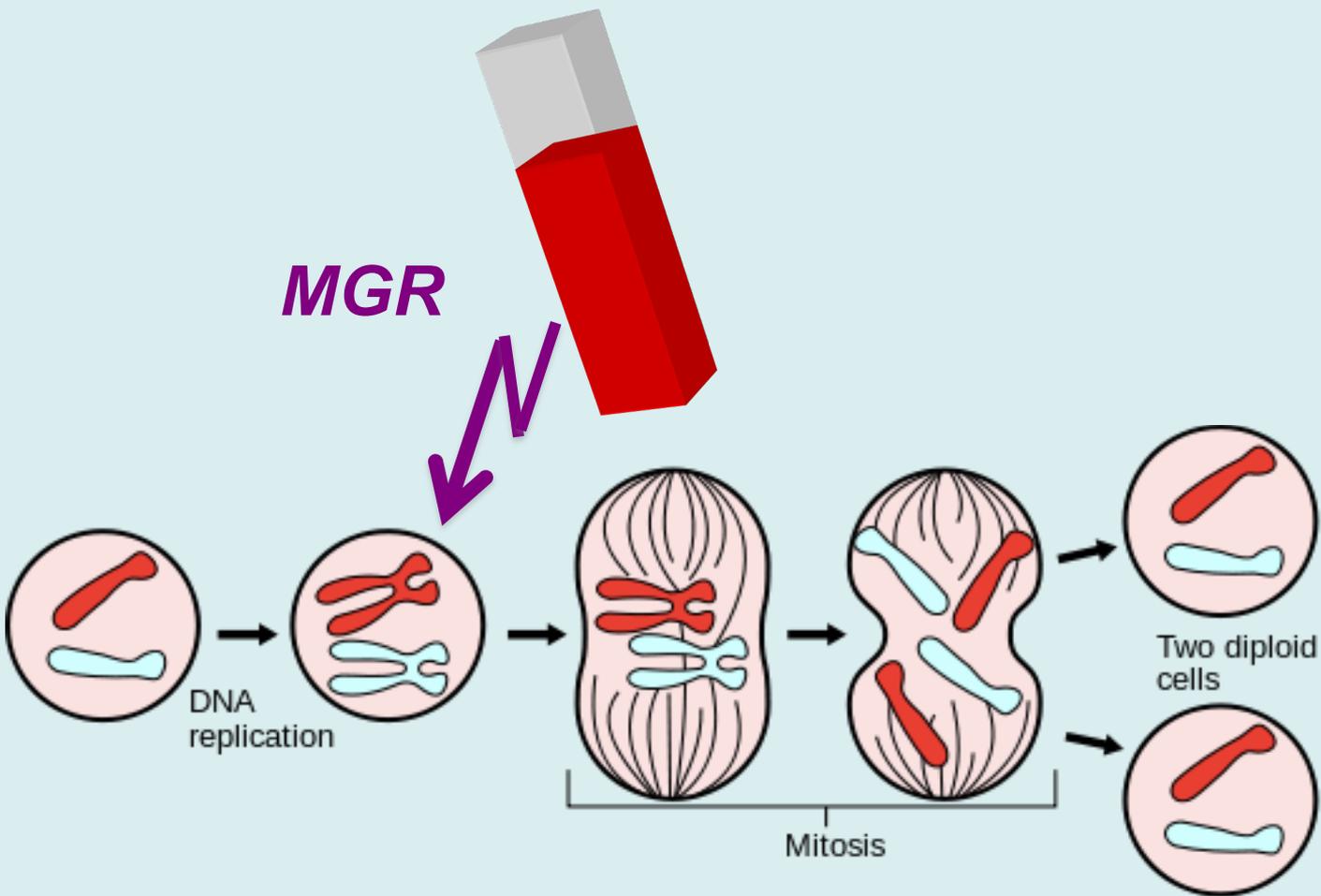
In order for a cell to enter into mitosis – division into two daughter cells a parent should get a triggering stimulus. Gurwitsch discovered that such stimulus is a weak intensity flux of UV photons – “Mitogenetic Radiation” (MGR)



Among animal tissues the major sources of **MGR** are:

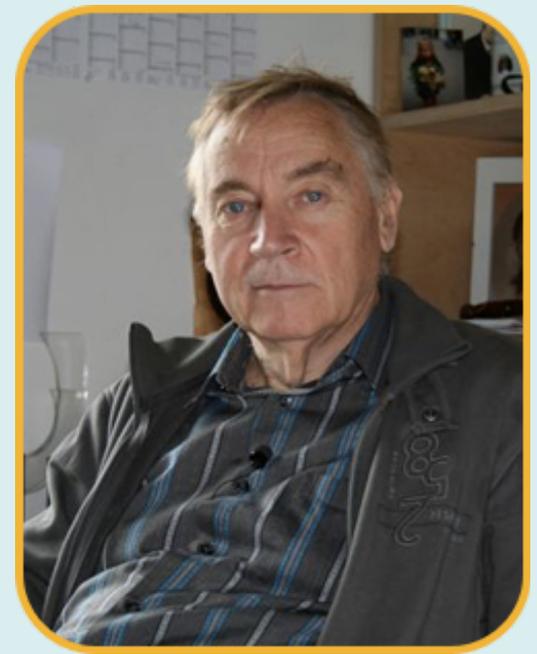
1. Fresh blood of a *healthy* person (or animal)

2. BRAIN



In 1980-is

Dr. Fritz-Albert Popp began to study Low Level Photon Emission (LLPE) from living organisms in a visible range of EM spectrum using highly sensitive photomultipliers (PMTs).



According to Popp LLPE originates from a delocalized coherent electromagnetic field that is tightly coupled to metabolic processes.

Popp termed LLPE from living systems “biophotonic emission”.

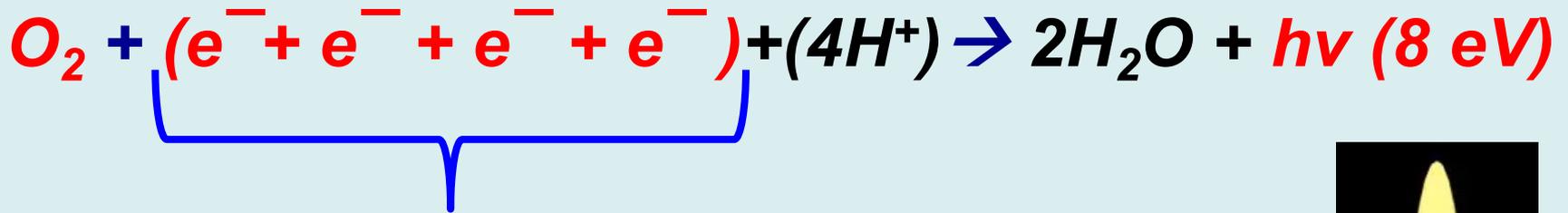
What is the source of energy that pumps this electromagnetic field?



MGR

"BIOPHOTONIC EMISSION"

PRIMARY sources of energy for both MGR and "Biophotonic emission" are oxidative processes and reactions in which OXYGEN is directly reduced with electrons abstracted from a **BURNING** fuel:



Intermediates – reactive oxygen species (ROS):



Smoldering - putrefaction



Burning - combustion

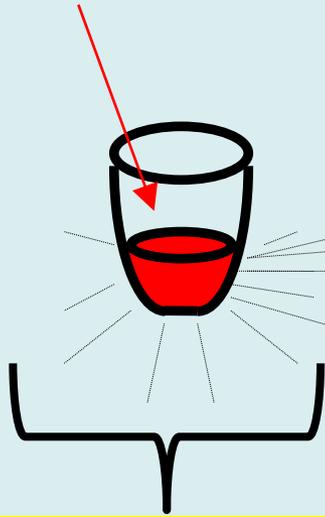
***THE REACTIONS OF FREE RADICALS RECOMBINATION
AND PEROXIDE ELIMINATION
ARE ACCOMPANIED WITH THE RELEASE OF
PORTIONS OF ENERGY EQUIVALENT TO PHOTONS OF VISIBLE AND UV
PART OF THE EM SPECTRUM***



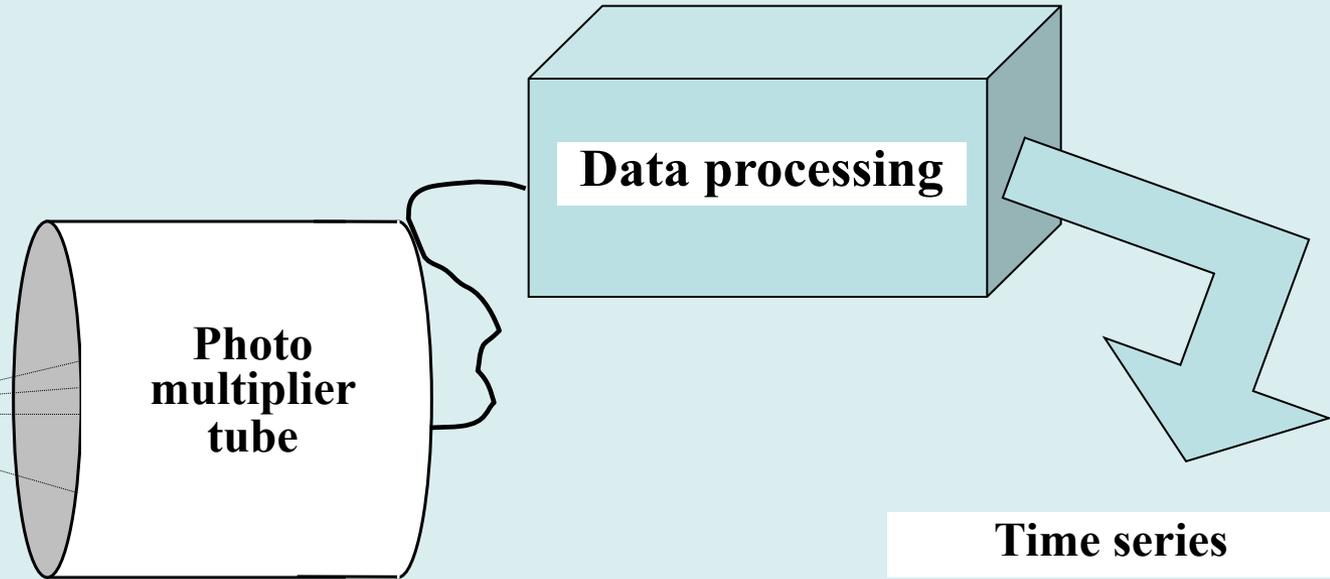
If such reactions proceed in **blood they *MAY BE* accompanied with photon emission (if energy released is not used for work performance or not dissipated into heat).**

Registration of low level photon emission

Test tube with blood

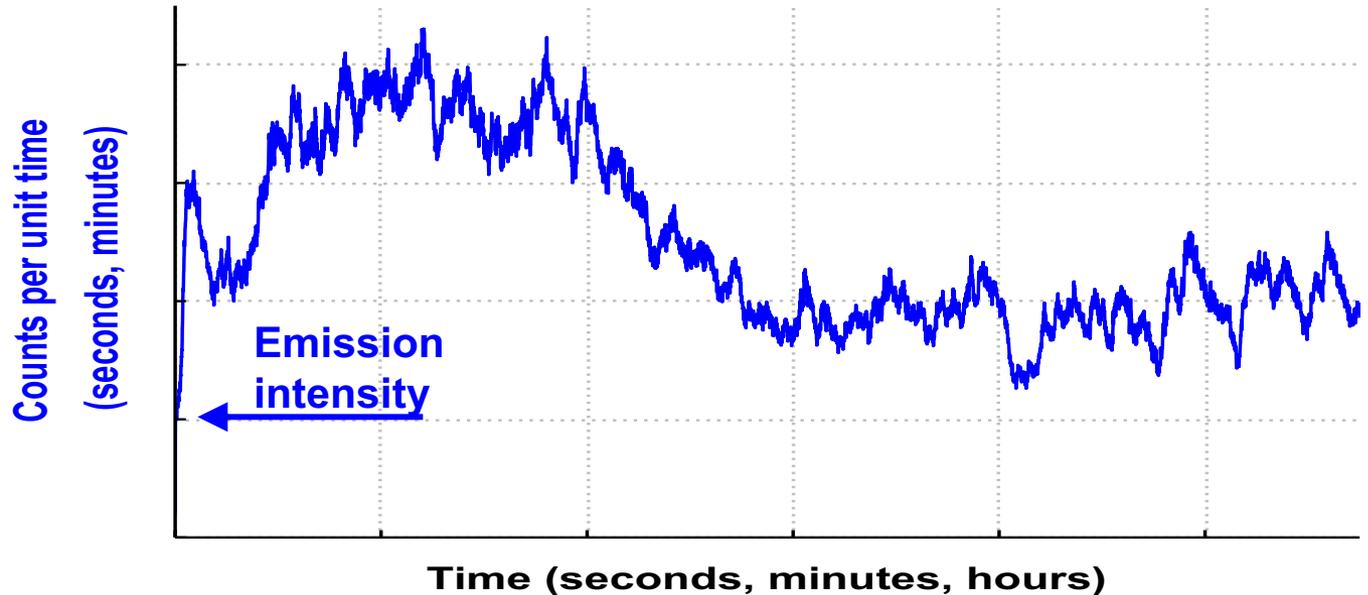


Light-proof
thermostatic
chamber

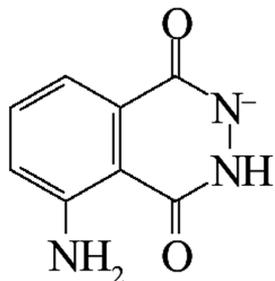


Data processing

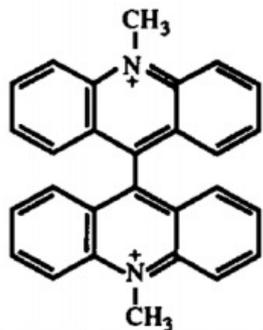
Time series



For the amplification of photon emission intensity related to the emergence of ROS in living matter specific chemical probes – LUMINOL and LUCIGENIN are used :

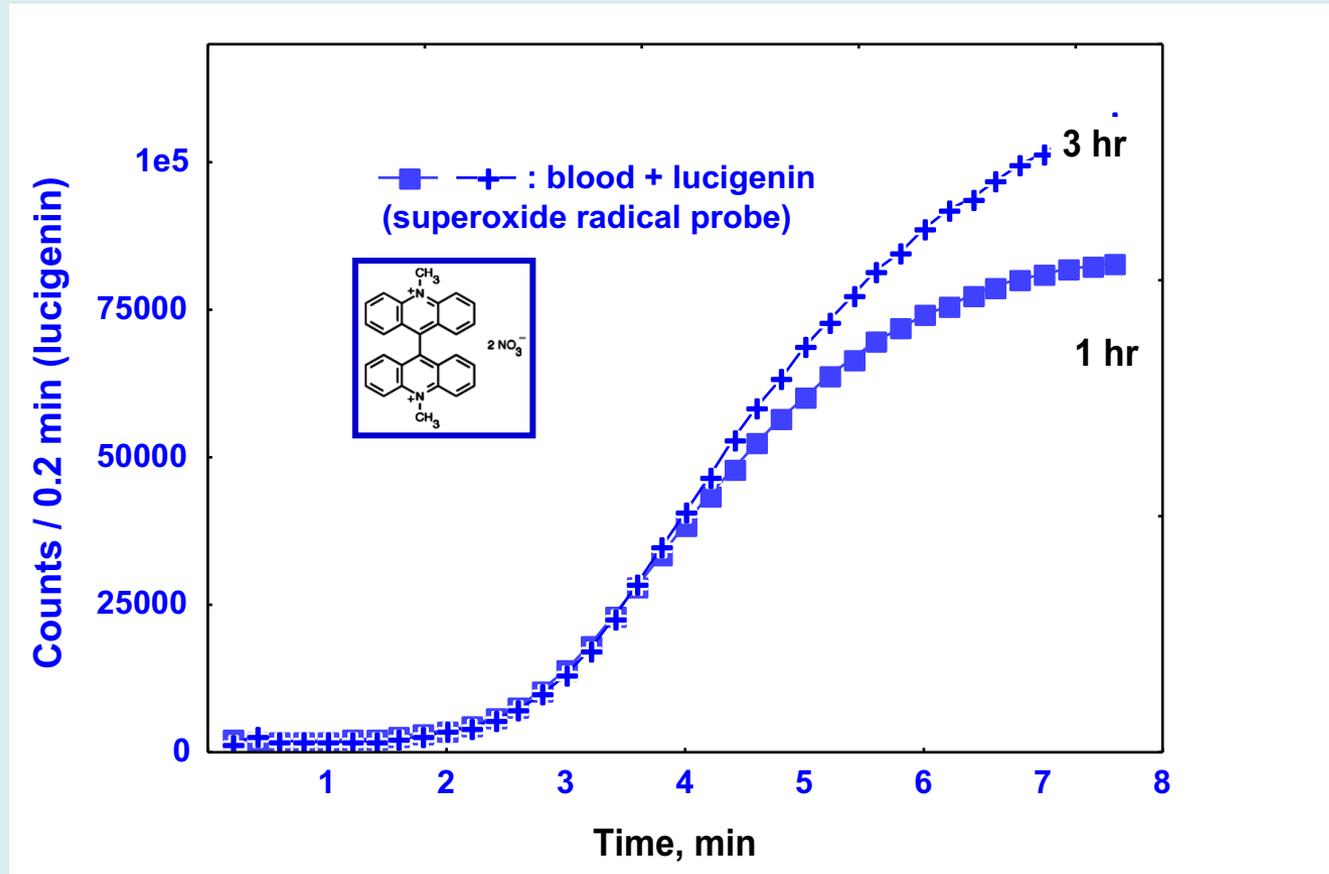


LUMINOL – a fluorescent compound that reports of a variety ROS (H_2O_2 , ClO^- , $OH\bullet$) production and elimination



LUCIGENIN – a fluorescent compound that reports of a superoxide radical ($HO_2\bullet$) production and elimination

We found that addition of LUCIGENIN to fresh blood of a healthy donor results in the development of pronounced photon emission. It increases with time of blood storage after its obtaining.

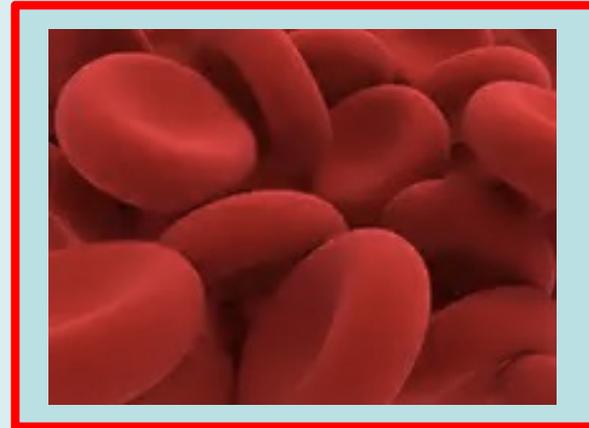
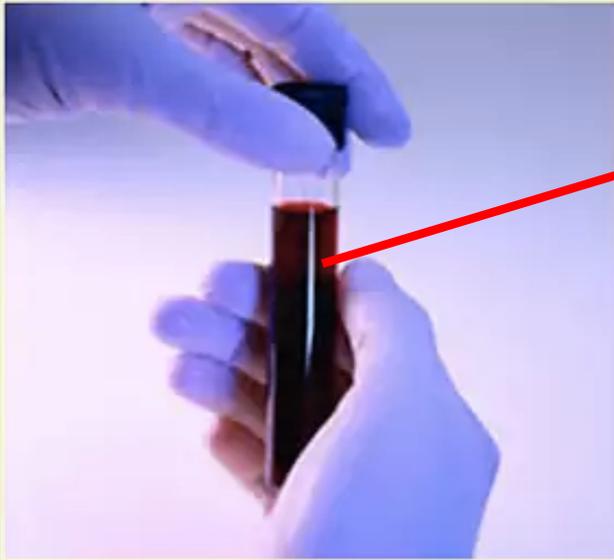


LUCIGENIN-AMPLIFIED photon emission from blood indicates:

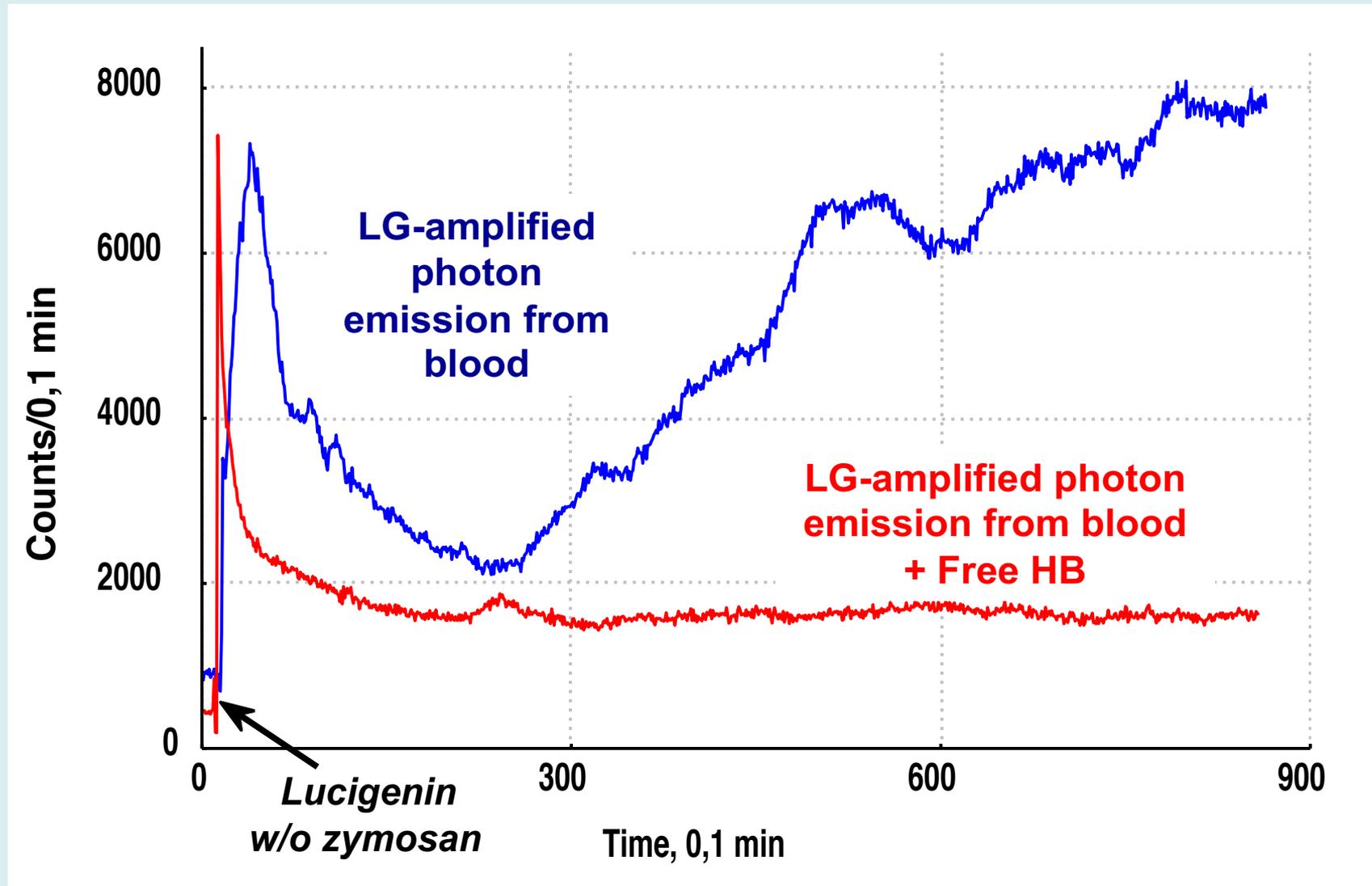
- 1) superoxide radicals are permanently produced in blood;
- 2) blood is opaque for ordinary light BUT it is transparent for “biophotons”

Blood is practically opaque for ordinary light because of very high concentration of hemoglobin.

Why it is transparent to very low intensity photons?

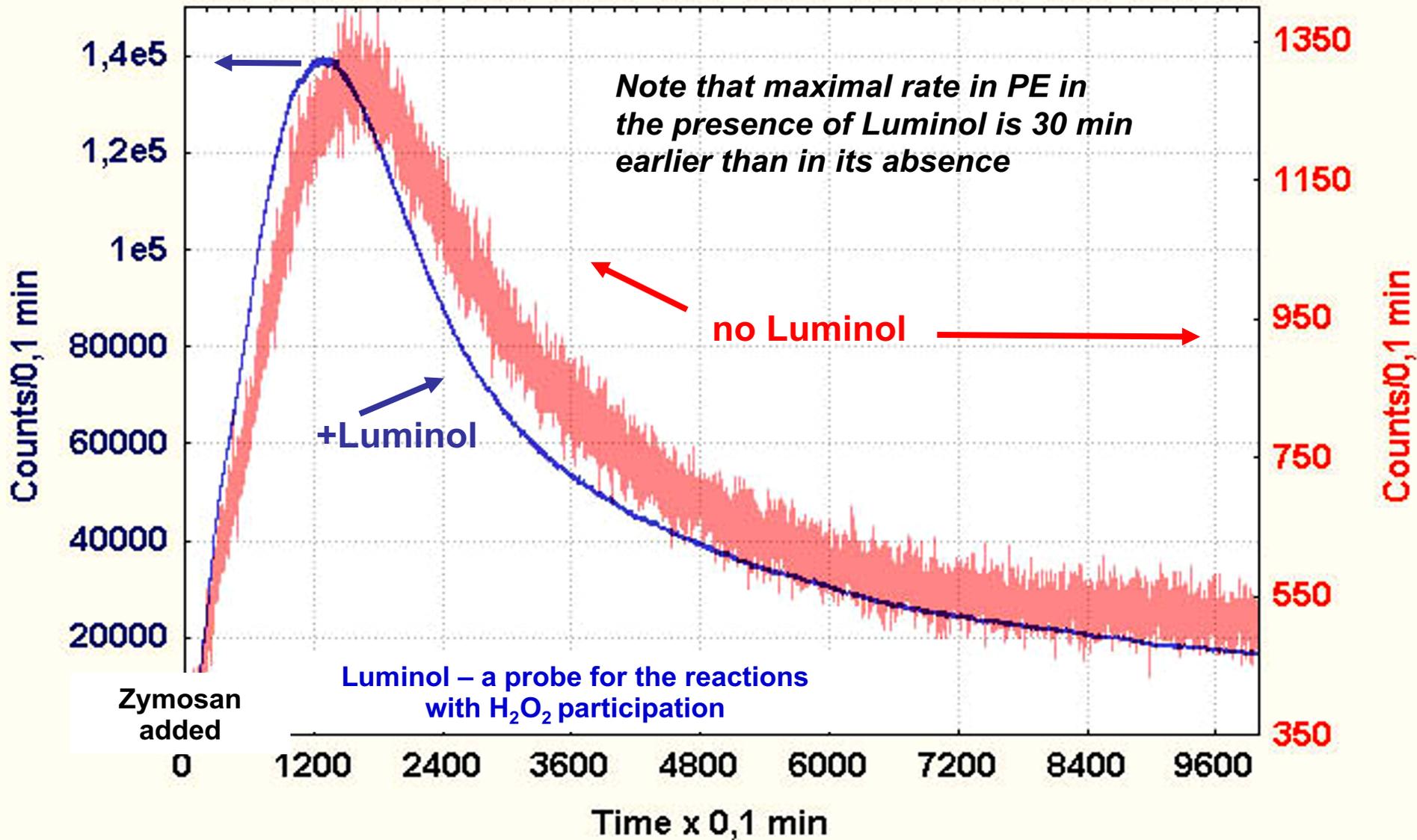


Free hemoglobin added to blood to only 0,5% of that is present in it quenches photon emission from blood



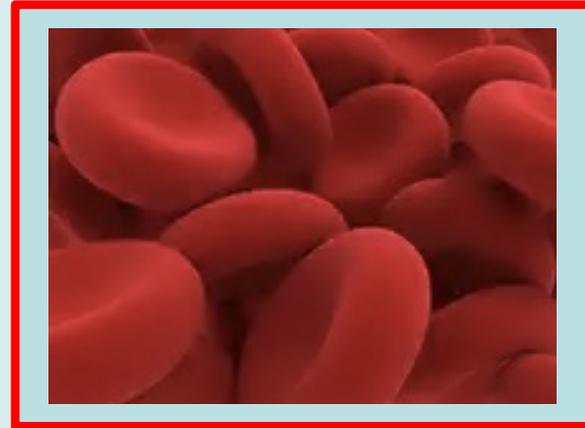
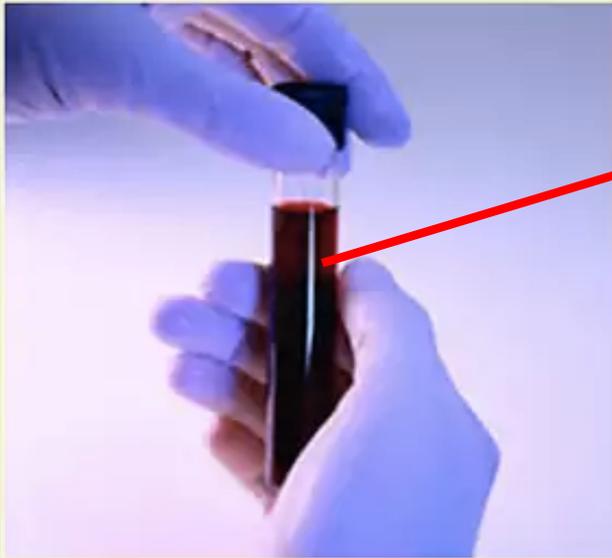
*Hence, Hb of erythrocytes is drastically different from **free Hb**:
Hb in erythrocytes resides **IN A LIQUID CRYSTALLINE STATE***

*Initiation of immune reaction in whole blood with yeast cell wall preparation (ZYMOSAN) is accompanied with the development of photon emission wave
In the presence of LUMINOL intensity of photon emission is ~ x 100 higher*



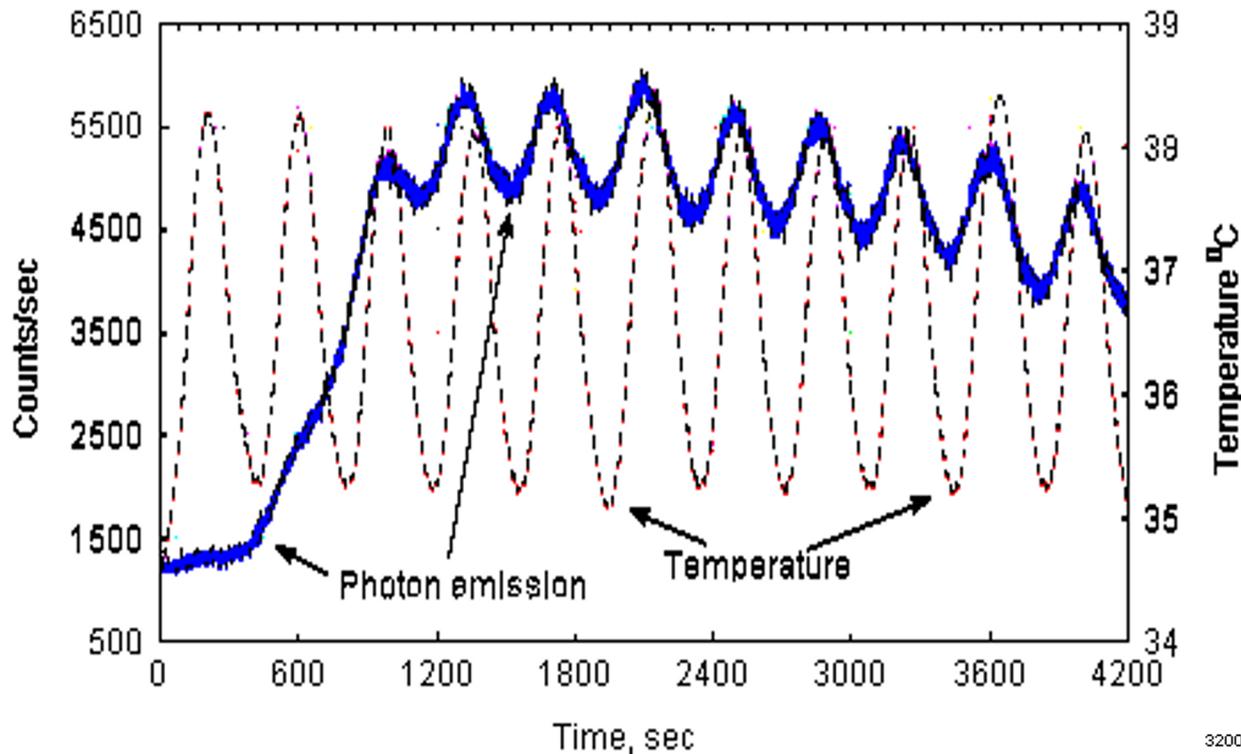
Transparency of blood for “biophotons” suggests that it resides in a far from equilibrium, electronically excited state – kind of a COHERENT STATE.

If this is true parameters of chemical reactions proceeding in such a body should deviate significantly from those characteristic for the “normal” system residing in a ground state



In particular, temperature dependence of the rates of biochemical reactions constituting immune reaction in blood deviates significantly from the classical Arrhenius law

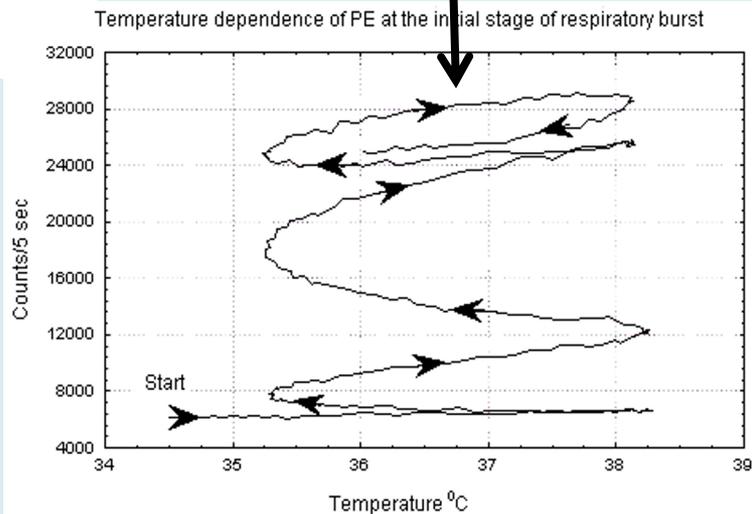
Response of photon emission from blood during immune reaction on temperature variations



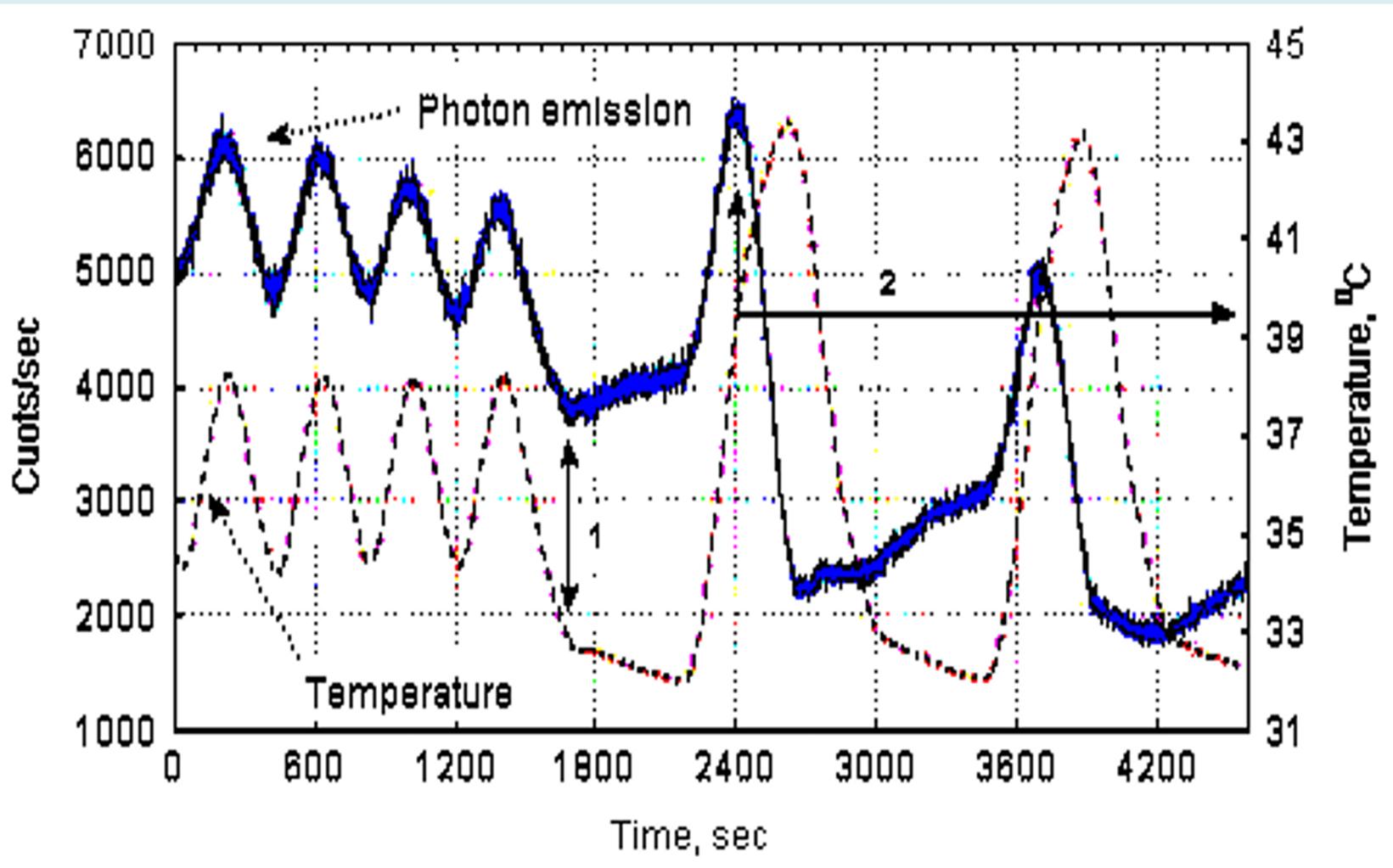
“Paradoxical” dependence of rates of biochemical reactions in blood on temperature indicates that blood is a “LASER-like” physical body.

HOWEVER, UNLIKE TECHNICAL LASERS BLOOD SELF-PUMPS ITSELF WITH ENERGY!

HYSTERESIS indicates that blood has memory



Blood reacts upon peculiarities in temperature changes as a living organism!

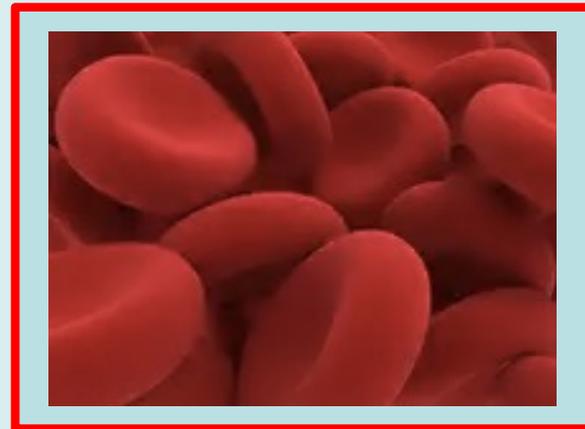


As a typical living system blood uses its internal energy for the maintaining its homeostatic state

Being in a highly excited ("LASER-like") state blood may be extremely sensitive to very low intensity "resonance" factors:

✓ Self – irradiation

✓ Biologically active compounds in ultra-low (homeopathic) doses



Photon emission from whole human blood is dependent upon physiological state of a donor and may be used for the monitoring of therapy of patients.

An example: monitoring of the course of low-level intravenous laser therapy of patients with stable Angina pectoris



CONCLUSIONS

- *Human blood is a continuous source of biophotons indicating that it persists in electronically excited state and represents an active (bio)physical entity.*
- *This state is pumped through generation of electron excitation produced in reactions in which ROS are generated and eliminated – “burning”.*
- *Excited state of blood is extremely sensitive to the tiniest fluctuations of external photonic fields but resistant to temperature variations.*
- *These data suggest that blood is a highly cooperative non-equilibrium and non-linear system, whose components unceasingly interact in time and space. At least in part this property is provided by the ability of blood to store energy of electron excitation that is produced in course of its own normal metabolism.*
- *From a practical point of view analysis of these qualities of blood may be a basement of new approach to diagnostic procedures.*

Thanks for you attention!

Спасибо за внимание!

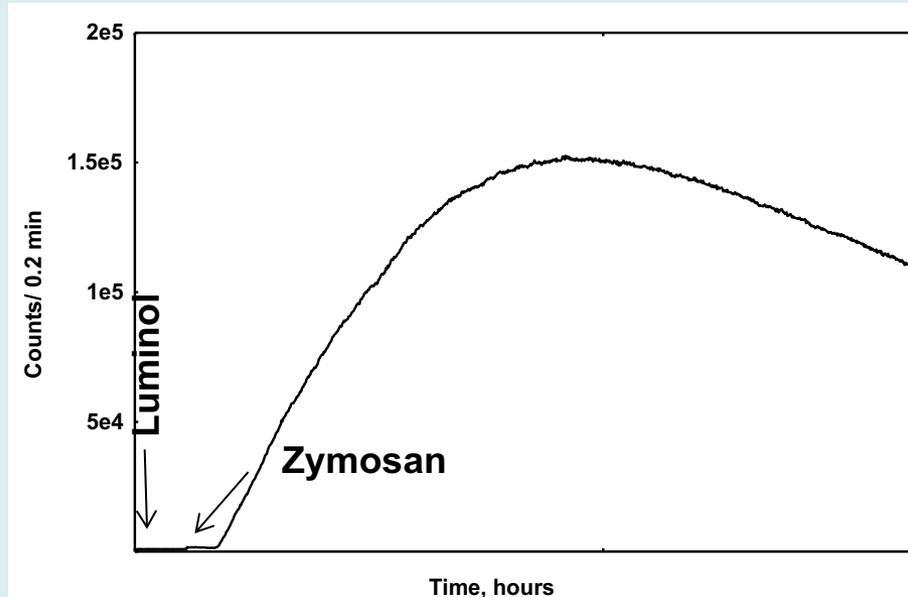
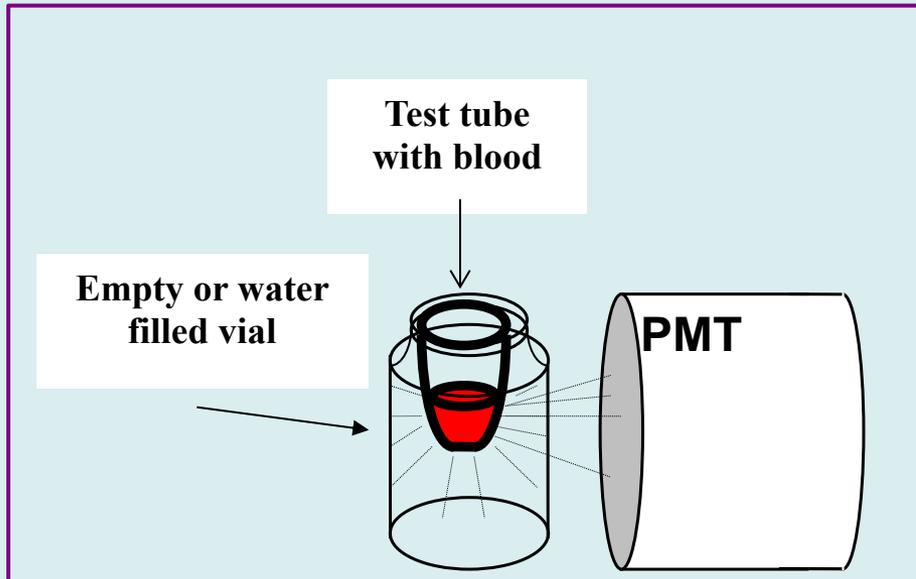


Дополнительные слайды

Effect of self-irradiation of blood upon the intensity of immune reaction in it

EXPERIMENTAL SET UP:

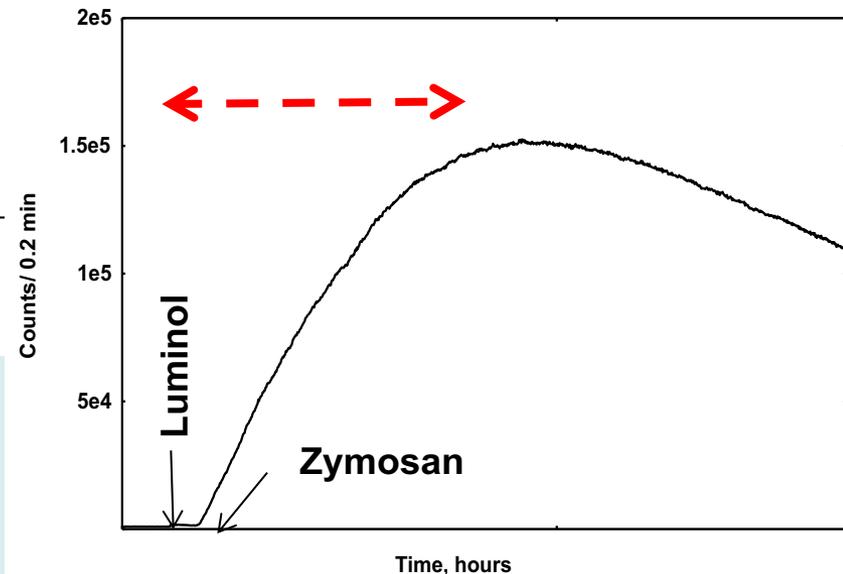
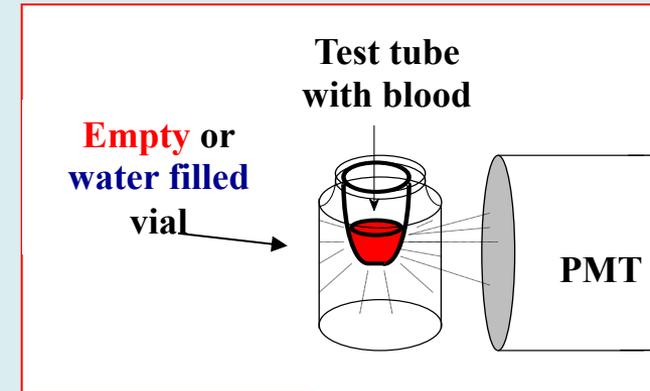
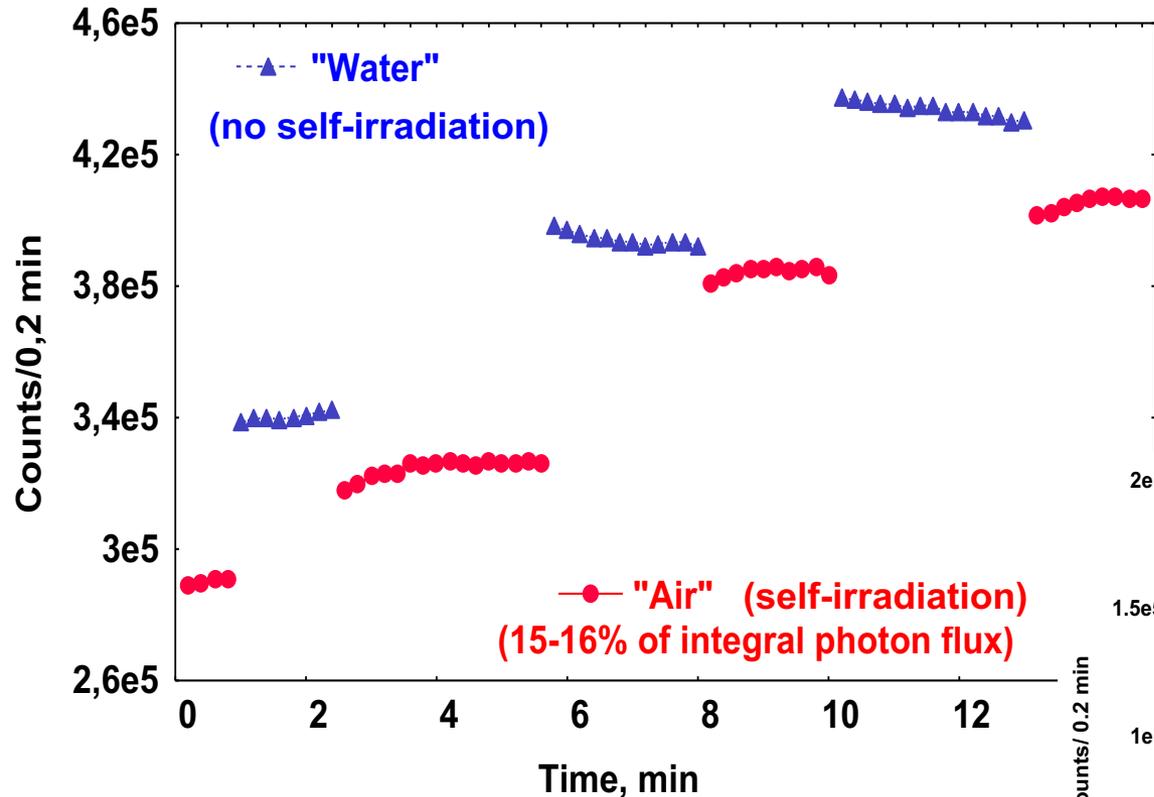
Immune reaction (“respiratory burst”) is induced in whole blood by Zymosan. Test tube with blood is successively inserted in **empty (air filled) glass vial** and **water filled glass vial**.



Empty (air filled) glass vial – 10-15% of emitted photons are reflected back to blood; blood is self-irradiated

Water filled vial – photons are not reflected back, no self-irradiation of blood

Effect of self-irradiation of blood upon the intensity of photon emission at the stage of immune reaction development

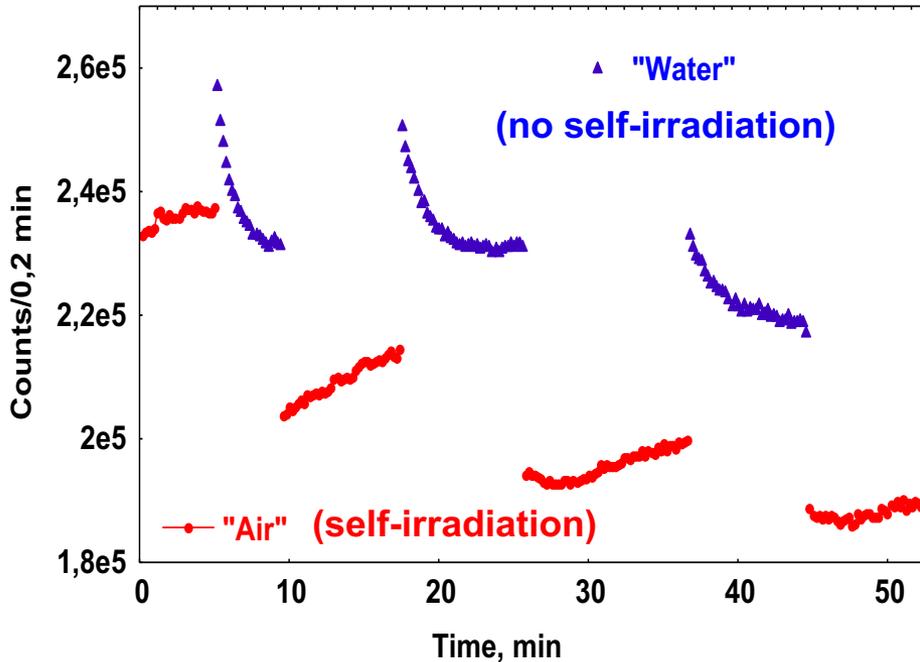


1 hour after initiation of the immune reaction in blood: stage of the photon emission "inflaming"

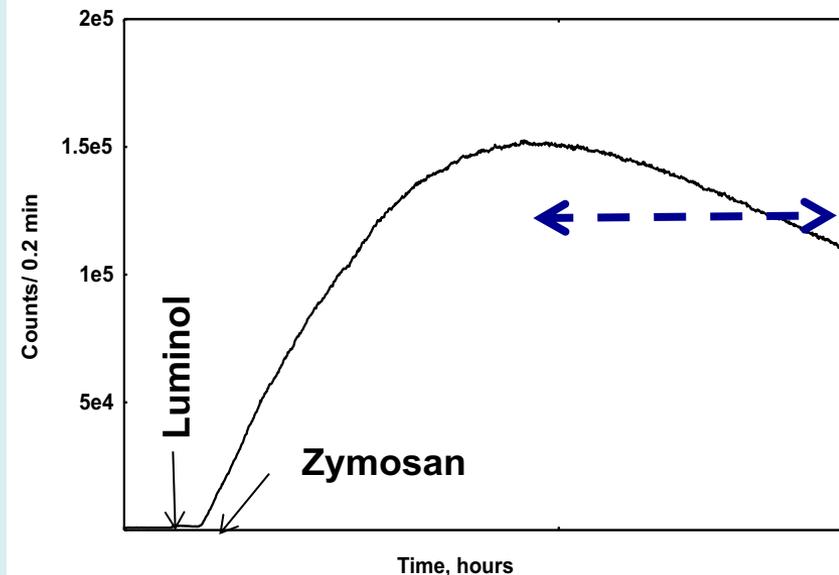
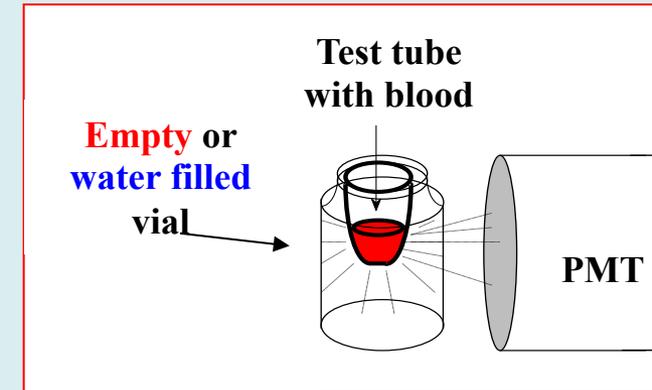
Effect of self-irradiation of blood upon the intensity of photon emission at the stage of immune reaction decay

The stage of emission fading

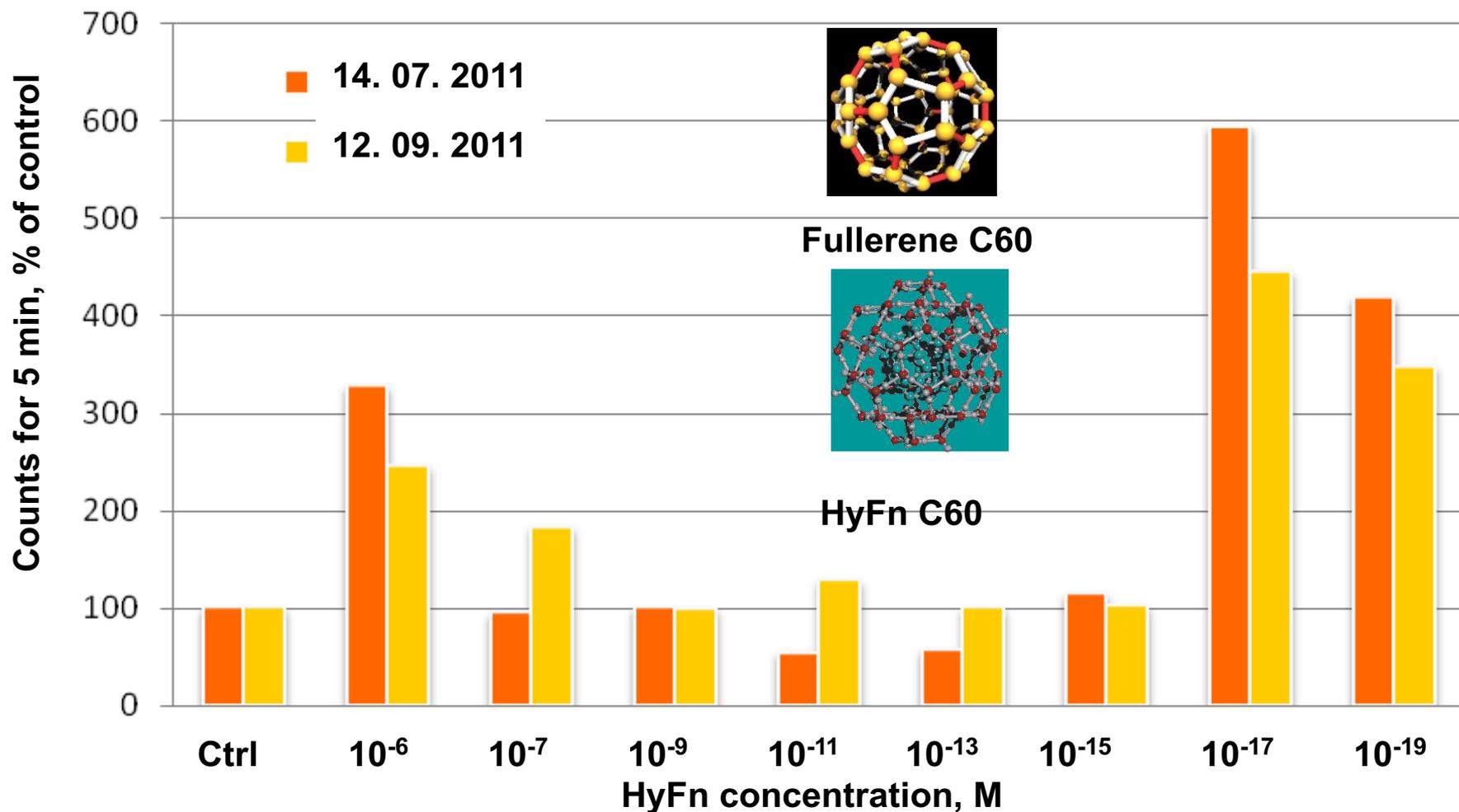
20 hours after respiratory burst initiation



Self-irradiation of blood at the stage of the immune reaction decay revitalizes the immune reaction though the intensity of the photon flux is extremely low



Hydrated Fullerene C60 in Ultra-Low (Homeopathic) Doses amplifies Lucigenin-dependent photon emission from a donor's blood



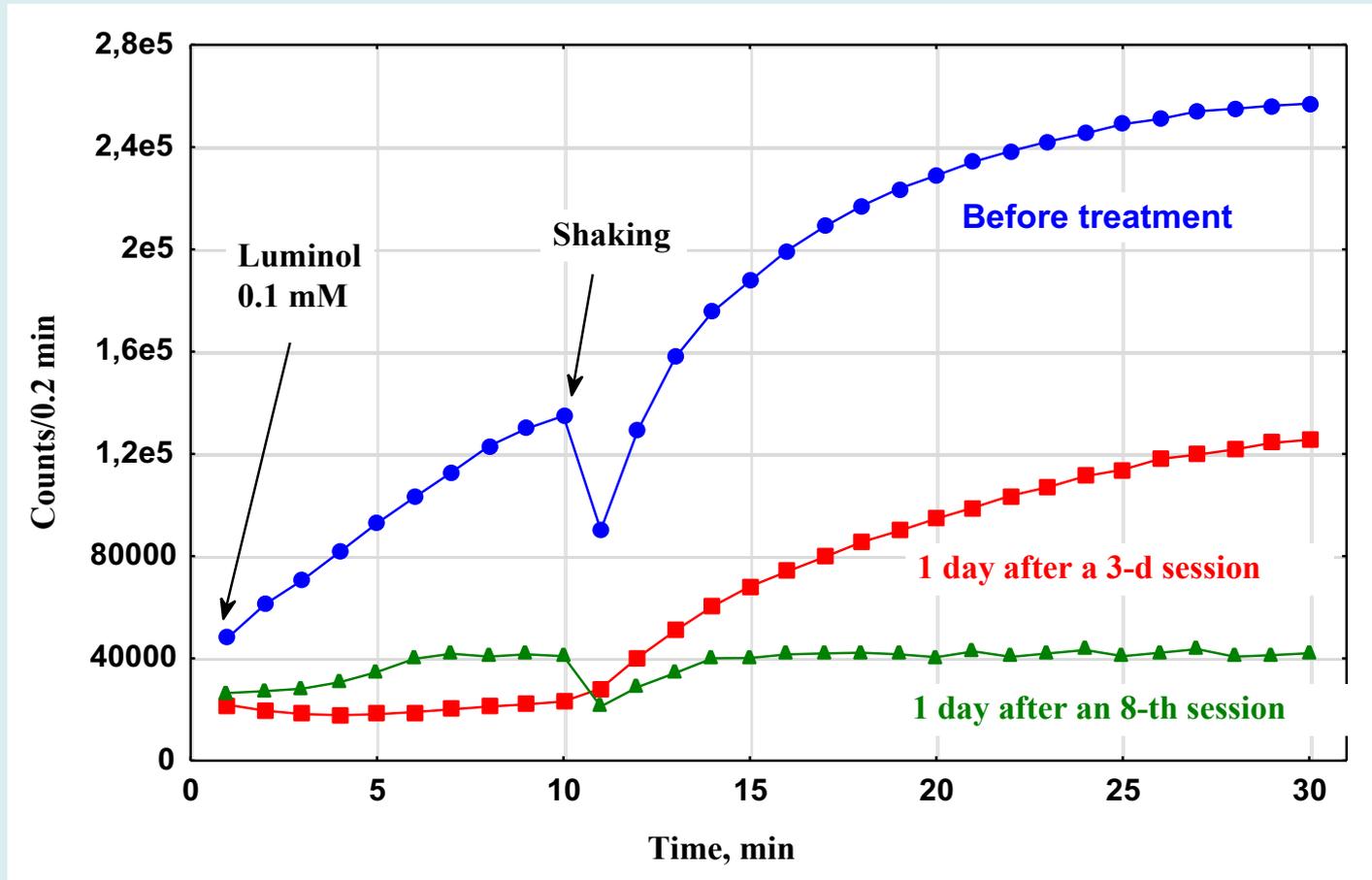
HyFn C60 concentration dependence of Lucigenin-amplified photon emission from healthy donor's blood has a multi-phase pattern. The pattern for one and the same donor is reproducible on different days.

Photon emission from whole human blood is dependent upon physiological state of a donor and may be used for the monitoring of therapy of patients.

An example: monitoring of the course of low-level intravenous laser therapy of patients with stable Angina pectoris



Luminol-dependent photon emission from non-diluted blood of stable *angina pectoris* patients before and after low-level intravenous laser therapy



Note that unlike a healthy donors' blood addition of luminol to it is followed with an immediate increase in PE

Laser treatment session: 30 min. exposure to $\lambda=633$ nm, output power - 1 mW, delivered into elbow vein through a waveguide

A case when “biophotonic” monitoring the treatment of a patient with LL i/v laser therapy revealed “overdosage”.

B

