



EX VIVO STUDY OF GLYCEROL AND GLUCOSE PERFUSION-KINETICS IN CAT OVARIES WITH SEROUS CARCINOMA AND LEIOMYOSARCOMA



Alexey A. Selifonov ¹, Andrey S. Rykhlov ², Valery V. Tuchin ^{3,4,5}

¹Education and Research Institute of Nanostructures and Biosystems, Saratov State University, Saratov 410012, Russia

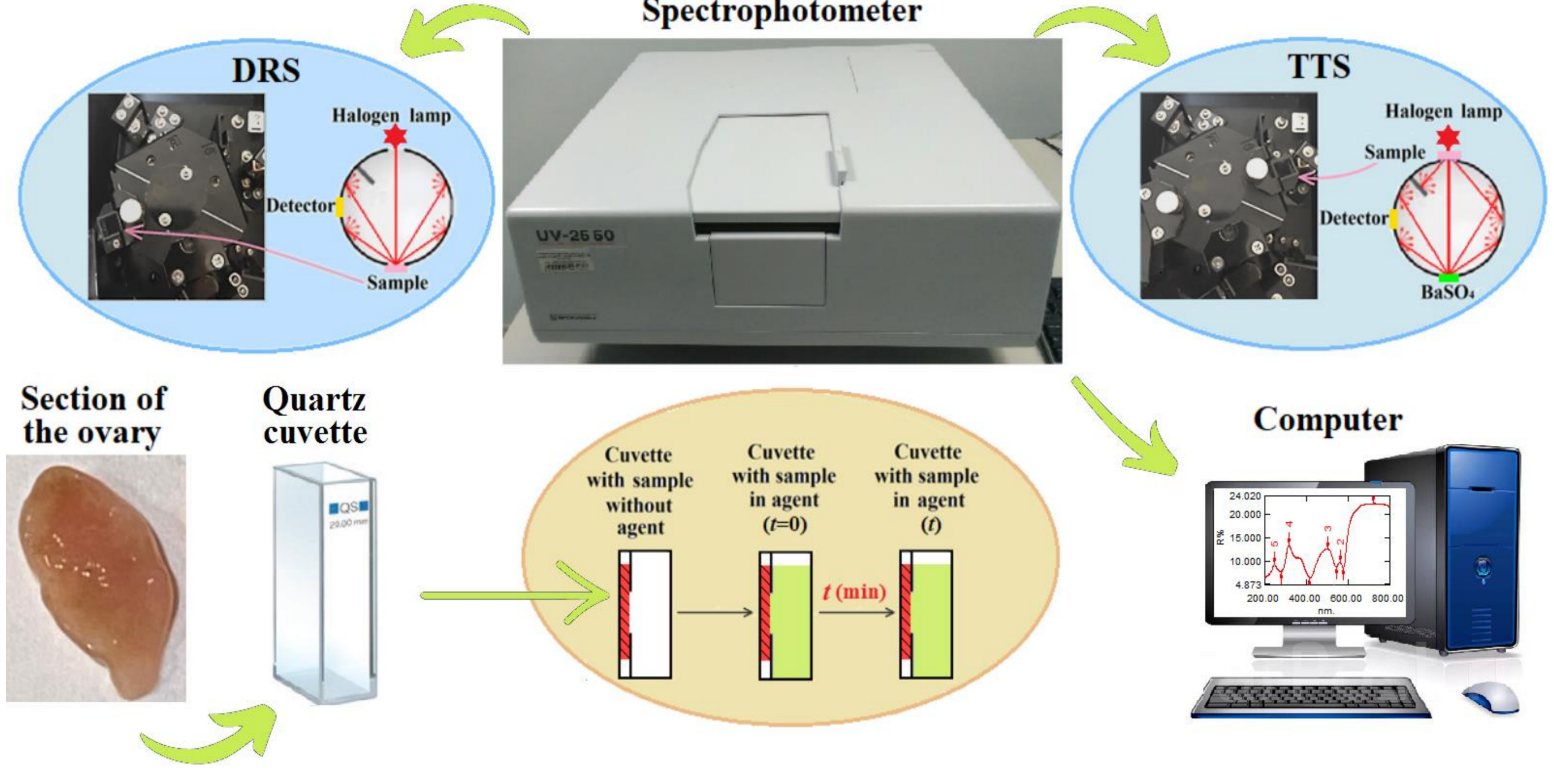
²Clinic "Veterinary Hospital" , Saratov State University of Genetics, Biotechnology and Engineering named after N.I. Vavilov, Saratov 410012, Russia

³Science Medical Center, Saratov State University, Saratov 410012, Russia

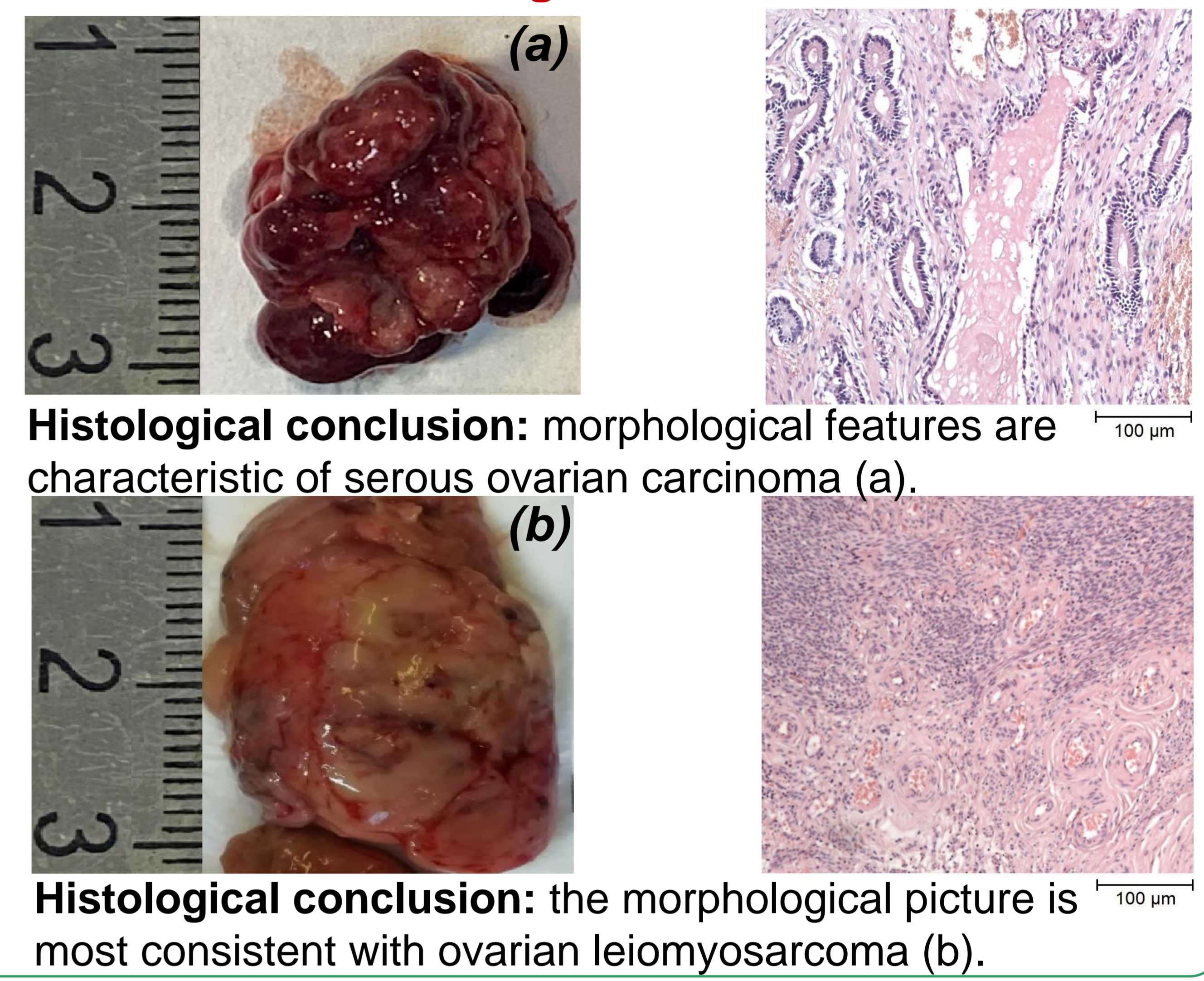
⁴Laboratory of laser molecular imaging and machine learning, Tomsk State University, Tomsk 634050, Russia

⁵Institute of Precision Mechanics and Control, FRC "Saratov Scientific Centre of the Russian Academy of Sciences," Saratov 410028, Russia

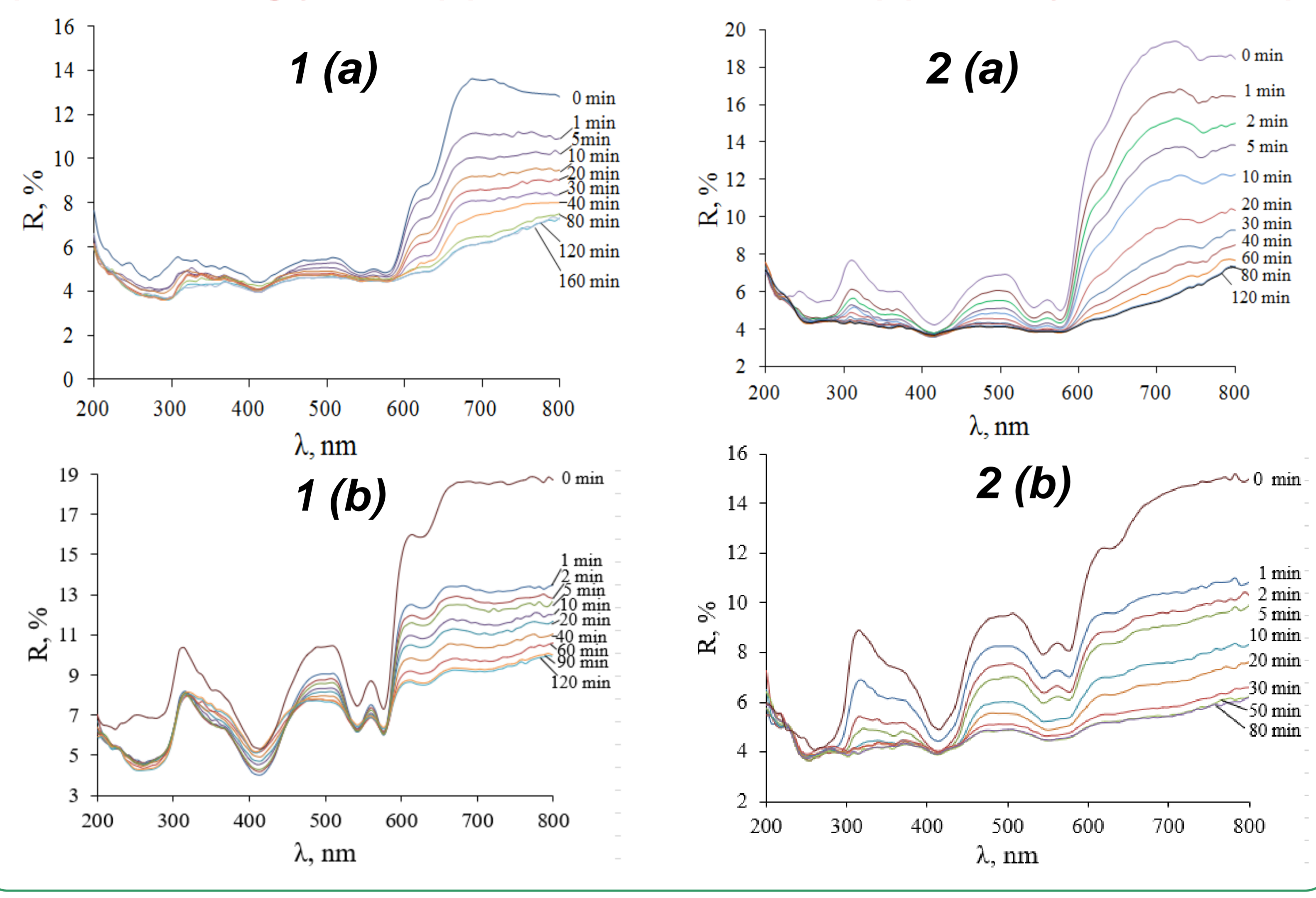
Scheme of the experimental setup for measuring diffuse reflectance spectra (DRS) and total transmission spectra (TTS) of cat ovarian tissue samples.



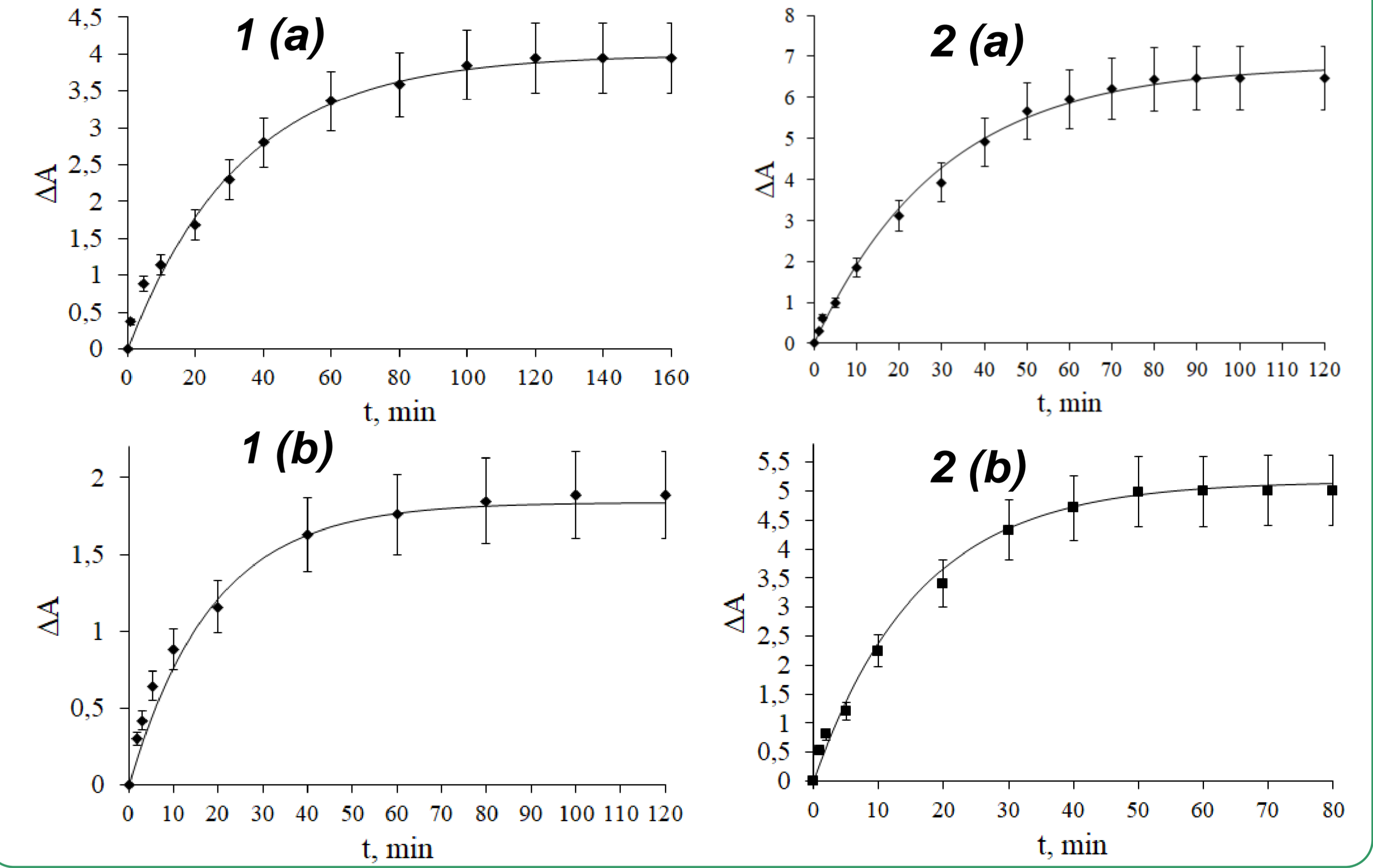
Histological Examination



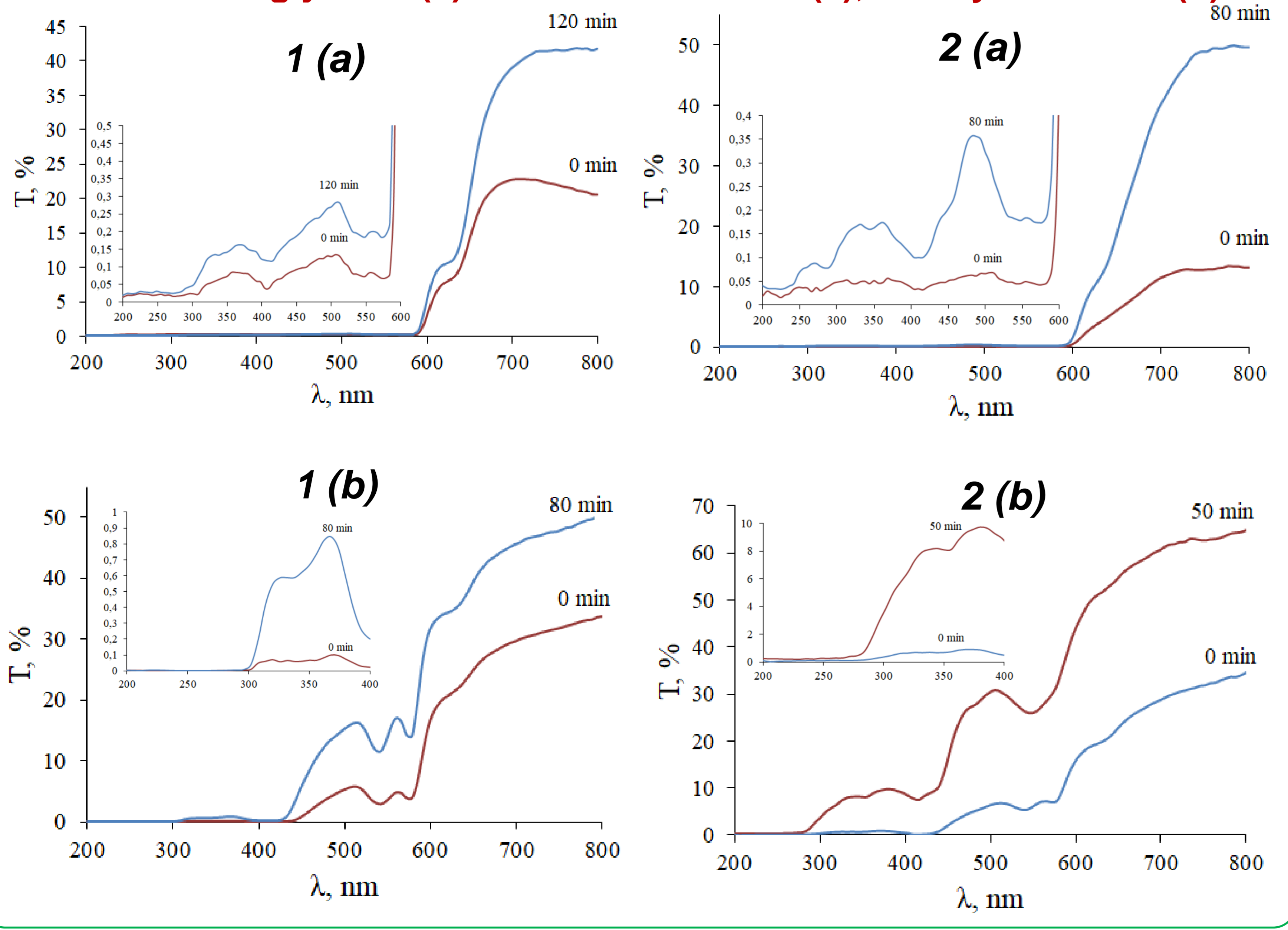
DRS of cat ovarian tissue samples when immersed in 40% glucose (1) and 99.5 % glycerol (2): serous carcinoma (a), leiomyosarcoma (b).



The kinetics of the difference in effective optical density ΔA(t, λ) of the studied ovarian samples when immersed in 40% glucose (1) and 99.5 % glycerol (2): serous carcinoma (a), leiomyosarcoma (b).



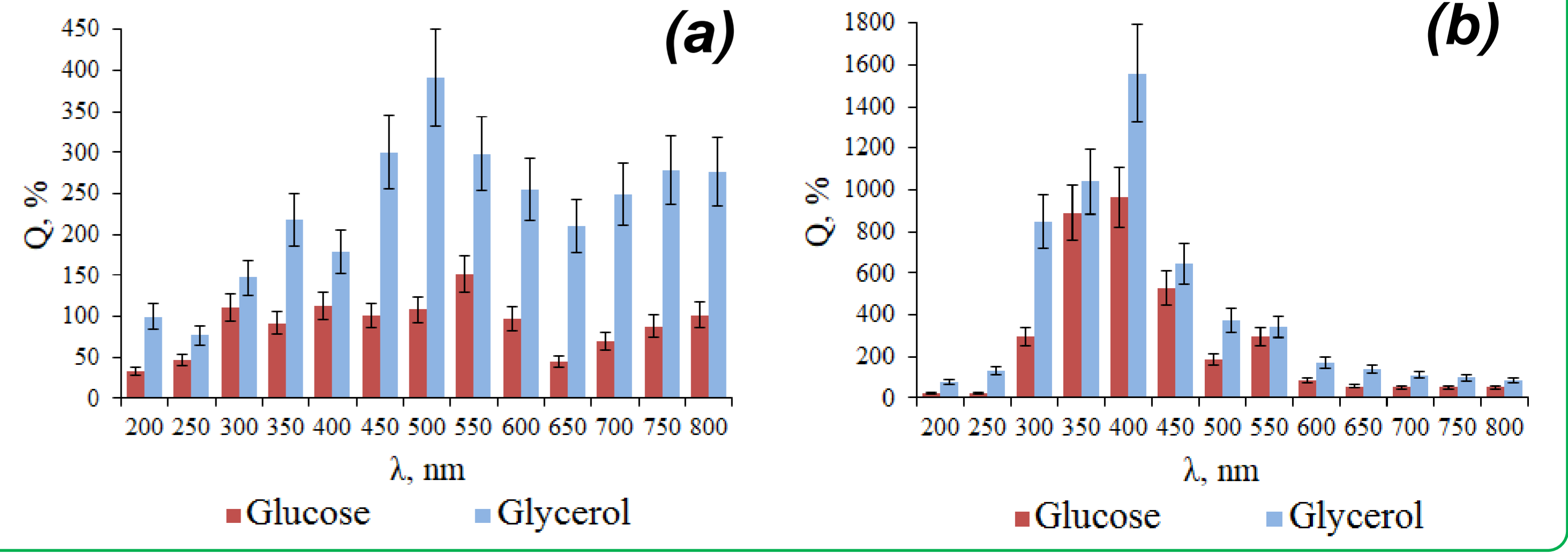
DRS of cat ovarian tissue samples when immersed in 40% glucose (1) and 99.5 % glycerol (2): serous carcinoma (a), leiomyosarcoma (b).



Tumor type	Agent	D×10 ⁶ , cm ² /s	τ, min
Serous ovarian carcinoma	40 % Glucose	1.22±0.2	45.2±2.3
	99.5 % Glycerol	1.56±0.2	35.3±1.8
Leiomyosarcoma of the ovary	40 %Glucose	1.96±0.2	28,1±1.2
	99.5 % Glycerol	3.00±0.3	18,3±0.6
Healthy ovary in the follicular phase [1]	40 %Glucose	0.86±0.1	50,4±1,7
	99.5 % Glycerol	1.90±0.2	22.3±0.6
Healthy ovary in the luteal phase [1]	40 %Glucose	0.75±0.1	57.3 ± 3.6
	99.5 % Glycerol	2.40±0.2	17.7±0.7

Efficiency (Q, %) of optical clearing of tissues of serous ovarian carcinoma (a) and ovarian leiomyosarcoma (b) after exposure to 40% glucose and 99.9% glycerol

$$Q (\%) = \{T(t, \lambda) - T(t=0, \lambda)\} \cdot 100 / T(t=0, \lambda),$$
 where $T(t=0)$ is the (total transmission coefficient, %) of the tissue sample for a specific wavelength at the initial time, and $T(t)$ is the same at the current time [2].



REFERENCES

- 1)A.A.Selifonov, A.S. Rykhlov, V.V.Tuchin, " The Glycerol-Induced Perfusion-Kinetics of the Cat Ovaries in the Follicular and Luteal Phases of the Cycle," Diagnostics 13, 490 (2023).
- 2)1) V.V.Tuchin, D. Zhu, E.A. Genina (eds.), Handbook of Tissue Optical Clearing : New Prospects in Optical Imaging. - CRC Press, Boca Raton, 688 p. (2022).

ACKNOWLEDGEMENTS

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