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**POSTER ABSTRACT PRESENTATIONS**

**SESSION TITLE: MOLECULAR ORGANIZATION OF CELLS AND ORGANELLES**

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**Abstract P-26: Study of Vimentin Unit-Length Filaments Aggregation in Presence of Different Polymers**

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**Background:** Cell migration is one of the important processes, where cytoskeleton takes the main part. Vimentin intermediate filaments are also implicated in cell migration and adhesion, but their role is not clear yet. So, earlier we have investigated the influence of different vimentin forms (knocked out, with mutation that blocks filament formation on the stage of ULFs, and normal filaments) on the polarity determination in rat fibroblasts. Based on these results we have shown the principle role of vimentin even in the form of ULFs in determination of the cellular polarity and the directionality of cell migration. But ULFs are prone to aggregate, so in order to get their structure by electron microscopy we decided to investigate the influence of different polymers on prevention of ULFs aggregation.

**Methods:** To investigate the aggregation of ULFs we used the method of dynamic light scattering. The polymers such as dextran sulfate and heparin were mixed with filaments in different concentrations to prevent the aggregation.

**Results:** The ULFs assembly was conducted by adding of high salt concentration (160 mM NaCl). The process of aggregation was determined, mainly, at 37<sup>0</sup>C, and during various time periods - 15 minutes and 1 hour. The results revealed the start of aggregation after 15 minutes of incubation. The hydrodynamic diameters of aggregated ULFs were from 120 nm till 350 nm depending on the incubation time, while the approximate hydrodynamic diameter of single ULF is 70-80 nm. Addition of polymers, such as dextran sulfate and heparin at different concentrations, maintained the ULFs in separate mode during one-hour incubation at 37<sup>0</sup>C with hydrodynamic diameter of 80 nm.

**Conclusion:** Based on the obtained results we can conclude that both polymers, dextran sulfate and heparin, positively influence on ULFs separation and prevent their aggregation. Thus, this approach may help us for getting the single vimentin ULFs by electron microscopy in order to determine their structure.

**Key Words:** ULF (unit-length filament) • vimentin • aggregation • dynamic light scattering

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