stability of Fluorescent protein nanoparticles(FPNPs)

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The protein nanoparticle (PNP) has some advantages in terms of their small size, high surface-to-volume ratio, size uniformity, etc. However, the stability of protein is low. In this work, we tried to enhance the short-term and long-term stability of protein, especially fluorescent protein nanoparticles (FPNPs) by using lyopilization. Unlike the fluorescent protein monomers that were gradually inactivated in aqueous solution, FPNP in the same aqueous solution retained the initial fluorescence activity and spherical nanoparticle structure even for 2 weeks at 4 ℃, 25 ℃, and 37 ℃. It is notable that fluorescence activity and nanoparticle structure of FPNPs that were lyophilized with stabilizer were very stably maintained even for 10 weeks at various storage temperatures (-20 ℃, 4 ℃, 25 ℃, and 37 ℃).