

Phylogeny of the naked amoebae

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In our previous studies we identified naked amoebae by morphological data. For most amoebas such data are not enough and to establish the species affiliation use molecular genetic research methods. We amplified 18S rRNA gene for the following species of amoebae: *Saccamoeba* sp. (3), *Thecamoeba quadrilineata* Carter, 1856, *Thecamoeba similis* Greeff, 1891, *Thecamoeba* sp., *Korotnevella stella* Schaeffer, 1926, *Vexillifera bacillipedes* Page, 1969, *Ripella* sp., *Vannella lata* Page, 1988, *Acanthamoeba* sp., *Cochliopodium actinophorum* Auerbach, 1856, *Cochliopodium minus* Page, 1976, *Cochliopodium* sp., and *Willaertia magna* De Jonckheere, Dive, Pussard & Vickerman, 1984. Using the obtained sequences we identified naked amoebas. All obtained sequences were uploaded to the NCBI/GenBank database. Reconstruction of phylogenetic trees based on a set of sequences and their testing by the bootstrap method was performed using the MEGA 10.0 software. Different naked amoeba sequences obtained during our research were compared with related amoeba sequences from the GenBank.

Phylogenetic analysis showed that amoeba of the genera *Vannella*, *Korotnevella*, and *Vexillifera* belong to the same group. Amoebas of the genera *Thecamoeba* and *Acanthamoeba* belong to a less stable group that differs from one phylogenetic tree to another. Members of the genus *Cochliopodium* form a relatively isolated long branch that does not group reliably with any stable clade, however, it is within Amoebozoa. Naked amoebas of the genera noted above belong to the class Discosea. *Saccamoeba* sp. (3) groups well with representatives of the genera *Deuteroamoeba* and *Amoeba*. Tubulinea and Discosea belong to the separate group Lobosa within Amoebozoa, according to the results of molecular phylogenetic analysis based on literature data. Representatives of the genus *Willaertia* are well grouped with representatives of the genus *Naegleria*, of the heterolobose amoeba.

So, for the first time were obtained 18S rRNA gene sequences for *Saccamoeba* sp. (3), *Thecamoeba* sp., *Ripella* sp., *Acanthamoeba* sp., *Cochliopodium* sp. Phylogenetic relationships have been established between different representatives of naked amoebas.