Collection of the proteus-type amoebae at the Institute of Cytology, Russian Academy of Sciences. II. Index of strains and list of publications

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Summary

Previously, in the first part of publication (Goodkov et al., 2014) we had presented and described the collection of free living freshwater amoeba strains of *Amoeba proteus*-type (family Amoebidae), the collection being for a long time maintained in the Institute of Cytology RAS, Saint-Petersburg, Russia. This collection is named Amoebae Culture Collection at the Institute of Cytology (ACCIC). In the second part of collection description (the present publication) we quote the full list of amoebae strains maintaining today in the Collection with their passports containing the date of the strain acceptance, whom it was received from, when and where the strain was isolated from, notes, and the full register of articles where these strains were used as research objects (bibliography).

Key words: *Amoeba*, bibliography, free living freshwater amoebae, strains collection

Introduction

Today the Amoebae Culture Collection at the Institute of Cytology RAS in St. Petersburg, Russia (ACCIC) is the unique collection containing numerous strains (=clones) of free living freshwater amoebae of *Amoeba proteus*-type (family Amoebidae). In the first part of our publication (Goodkov et al., 2014) we have briefly described the history of Collection creation since 1960 year, the methods of amoebae strains cultivation, and the main goals and application of the Collection in different scientific research fields.

In the present publication we quote the full list of amoebae strains maintaining today in the Collection with their passports which include the date of the strain acceptance, whom it was received from, when and where the strain was isolated from, notes, and the full register of articles where these strains were used as research objects (bibliography), with the exception of secondary importance publications, such as abstracts, etc.

As we had already mentioned earlier (Goodkov et al., 2014), some strains which have been formerly actively used in various experimental works were irretrievably lost, some strains having been removed from the Collection rather meaningly — in the cases if any suspicion of contamination by another strain has arose. We do not include such strains in the list given below.
List of strains

**AMOEBA PROTEUS STRAIN B**

**Date** 1959
**From** M. Müller (Medical University, Budapest, Hungary).
**Origin** Established at the King’s College (London, UK) in 1950th.

**AMOEBA PROTEUS STRAIN MGU**

**Date** 1960
**From** G.V. Nikolaeva (Institute of Cytology, St. Petersburg (Leningrad), Russia).
**Origin** Isolated in Moscow region, Russia.
**Bibliography** Sikora and Kalinina, 1975; Yudin, 1982.

**AMOEBA PROTEUS STRAIN P (POL)**

**Date** 1962
**From** L.N. Seravin (Biological Institute of St. Petersburg (Leningrad) University, Russia).
**Origin** Cells of this strain were delivered from Poznan (Poland), where they were maintained in one of protozoological laboratories.
**Bibliography** Sopina and Yudin, 1965; Yudin, 1982; Yudin and Sopina, 1970.

**AMOEBA PROTEUS STRAIN TD (T1D)**

**Date** 1963
**From** M. Müller (Medical University, Budapest, Hungary).
**Origin** Established at King’s College (London, UK) in 1948.
**Notes** Cells of this strain were passed to Medical University (Budapest, Hungary) by S.E. Hawkins.
**Bibliography** Afon’kin, 1983, 1989; Goodkov et al., 2010; Makhlin, 1971; Podlipaeva and Goodkov, 2009; Sopina, 1993; Sopina and Fokin, 1993; Yudin, 1982.

**AMOEBA PROTEUS STRAIN C**

**Date** 1964
**From** M.M. Isakova-Keo (Department of Invertebrate Zoology, St. Petersburg (Leningrad) State University, Russia).
**Origin** Isolated by A.V. Yankowsky from the pond located in Mozhaiskaya village (St. Petersburg (Leningrad) province, Russia) in 1962.

**AMOEBA PROTEUS STRAIN A**

**Date** 1964  
**From** M. Taylor (Notre Dame Training College, Glasgow, Scotland).  
**Origin** The place of isolation and date of establishing are unknown.  
**Notes** According to Sister Monica Taylor, the history of this amoebae isolate extends back to 1916-1917 (Taylor, 1925).  

**AMOEBA PROTEUS STRAIN PET (PETROZAVODSK)**

**Date** 1968  
**From** G.V. Nikolaeva (Institute of Cytology, St. Petersburg (Leningrad), Russia).  
**Origin** Isolated in 1968 from the pond in the neighbourhood of Petrozavodsk (Karelia, Russia).  
**Bibliography** Podlipaeva, 1994; Podlipaeva and Yudin, 2001; Sikora and Kalinina, 1975; Sopina, 1993; Yudin, 1982.

**AMOEBA PROTEUS STRAIN BK**

**Date** 1969  
**From** D.M. Prescott (Department of Molecular, Cell and Developmental Biology, University of Colorado, Boulder, Colorado, USA).  
**Origin** The strain was established at the Zoological Department, University of California (Berkley, USA) in 1952.  
**Notes** In 1960 cells of this strain were passed to the Department of Biology, University of Pennsylvania (Philadelphia), then to the Department of Molecular, Cell and Developmental Biology, University of Colorado (Boulder, Colorado). This is the same strain which was intensively used in experimental studies by many investigators in 1970s—80s (Byers et al., 1963; Kates and Goldstein, 1964; Goldstein and Ron, 1969; Spear and Prescott, 1980; etc.).

**AMOEBA PROTEUS STRAIN F**

**Date** 1971  
**From** M. Tuffrau (Laboratoire de Zoologie II, Orsay, France).  
**Origin** The place of isolation and date of establishing are unknown.  

**AMOEBA PROTEUS STRAIN MURINO**

**Date** 1974  
**From** N.N. Bobyleva (Institute of Cytology, St. Petersburg (Leningrad), Russia).  
**Origin** Isolated in 1974 from the pond in the Murino village, St. Petersburg (Leningrad) region, Russia.  
**Bibliography** Sopina, 1993.

**AMOEBA PROTEUS STRAIN TP (T,P)**

**Date** 1975  
**From** M.J. Ord (University of Southampton, UK).
**Origin** Isolated in Glasgow (Scotland) in 1948 by M. Taylor (Notre Dame Training College, Glasgow, Scotland).

**Notes** Culture of this strain was kept at the King’s College (London, UK).

This is the same strain which was intensively used in experimental studies by many investigators in 1960th – 1980th (Lorch and Danielli, 1953; Wilson, 1958; Danielli, 1959; Cole and Danielli, 1963a, 1963b; Hawkins and Danielli, 1961; Hawkins and Cole, 1965; Hawkins and Wolstenholme, 1966; Hawkins, 1973a, 1973b; Hawkins and Willis, 1969a, 1969b, 1969c; Jean and Lorch, 1973; Friz, 1972, 1975; Jarlstedt and Friz, 1974; etc.).


**AMOEBA PROTEUS STRAIN C4**

**Date** 1978

**From** L.V. Kalinina (Institute of Cytology, St. Petersburg (Leningrad), Russia).

**Origin** The strain was established by L.B. Goryunova (Institute of Cytology, St. Petersburg (Leningrad), Russia) by cloning of *A. proteus* amoebae which were treated with ribonuclease.

**Bibliography** Goryunova and Kalinina, 1977.

**AMOEBA PROTEUS STRAIN D**

**Date** 1983

**From** L.V. Kalinina (Institute of Cytology, St. Petersburg (Leningrad), Russia).

The cells of this strain were delivered through M.J. Ord (University of Southampton, UK).

**Notes** These amoebae initially were determined as *A. discoides* Shaeffer, 1916; later this species was synonymized with *A. proteus* (Pallas) Leidy, 1878 (Jean and Lorch, 1973; Yudin, 1982).


**AMOEBA PROTEUS STRAIN DZ**

**Date** 1984

**From** M.V. Tavrovskaya (Institute of Cytology, St. Petersburg (Leningrad), Russia).

**Origin** The strain was established by M.V. Tavrovskaya in 1984 by cloning amoeba isolated from the pond in Lopuhinsky garden, St. Petersburg, Russia.

**Bibliography** Page, 1986; Sopina, 1993.

**AMOEBA PROTEUS STRAIN CCAP 1503/4**

**Date** 1984

**From** F.C. Page (Institute of Terrestrial Ecology, Cambridge University, UK).

**Origin** Derivate of the corresponding strain which was deposited in the Culture Collection of Algae and Protozoa (CCAP, Scottish Marine Institute, Scotland, UK).

**Bibliography** Sopina, 1993.

**AMOEBA PROTEUS STRAIN VAL**

**Date** 1989

**From** A.S. Karpov (Institute of Cytology, St. Petersburg, Russia).

**Origin** The strain was established by Alexander S. Karpov in 1989. Amoebae were isolated from the Skitskyi gulf, Lake Sys’jarvi (Valaam Archipelago, Karelia, North-Western Russia), from the samples of bottom sediments near the coast line.

**Bibliography** Goodkov et al., 2009, 2010; Plekhanov et al., 2006; Podlipaeva and Goodkov, 2009.

**AMOEBA PROTEUS STRAIN KAN**

**Date** 1989

**From** A.S. Karpov (Institute of Cytology, St. Petersburg, Russia).

**Origin** The strain was established by Alexander S. Karpov in 1989. Amoebae were isolated from the Lake Kanevskoe (Valaam Archipelago, Karelia, North-Western Russia), from samples of microfouling community.

**Bibliography** Goodkov et al., 2010; Podlipaeva and Goodkov, 2009; Podlipaeva et al., 2006.

**AMOEBA PROTEUS STRAIN CONT**

**Date** 1989

**From** A.S. Karpov (Institute of Cytology, St. Petersburg, Russia).

**Origin** The strain was established by Alexander S. Karpov in 1989. Amoebae were isolated from the Kontrol’niy Gulf, Lake Sys’jarvi (Valaam Archipelago, Karelia, North-Western Russia).
**AMOEBA PROTEUS STRAIN VSK**

**Date** 1990  
**From** A.S. Karpov (Institute of Cytology, St. Petersburg, Russia).  
**Origin** The strain was established by Alexander S. Karpov in 1990. Amoebae were isolated from the fire reservoir, Voskresensky monastery (Valaam Archipelago, Karelia, North-Western Russia).

**AMOEBA PROTEUS STRAIN CCAP 1503/8**

**Date** 1991  
**From** F.C. Page (Institute of Terrestrial Ecology, Cambridge University, UK).  
**Origin** Derivate of the corresponding strain which was deposited in Culture Collection of Algae and Protozoa (CCAP, Scottish Marine Institute, Scotland, UK).

**AMOEBA PROTEUS STRAIN SHAPKI**

**Date** 1993  
**From** M.V. Vladimirov (Institute of Cytology, St. Petersburg, Russia).  
**Origin** Isolated from the pond in Shapki settlement (St. Petersburg province, Russia).

**AMOEBA PROTEUS STRAIN NEAPOL**

**Date** 2005  
**From** S.I. Fokin (St. Petersburg State University, St. Petersburg, Russia).  
**Origin** Isolated by S.I. Fokin in 2005 from the pond in vicinities of Naples (Italy).  
**Bibliography** Goodkov et al., 2010; Podlipaeva and Goodkov, 2009.

**AMOEBA PROTEUS STRAIN OLGINO**

**Date** 2013  
**From** M.V. Tavrovskaya (Institute of Cytology, St. Petersburg, Russia).  
**Origin** The strain was established by M.V. Tavrovskaya in 2013 by cloning of amoeba isolated from the pond Olginskiy (Svetlanovskiy ave., St. Petersburg, Russia).

**AMOEBA PROTEUS CULTURE BY13**

**Date** 1989  
**From** D.V. Ossipov (Biological Research Institute, St. Petersburg (Leningrad) State University, Russia).  
**Origin** Isolated by D.V. Ossipov in 1989 from a pond in Borok settlement (Yaroslavl’ province, Russia).  
**Notes** In the record-card of this culture there is no information about cloning procedures, so it is probable not a strain.

**AMOEBA SP. STRAIN AS-102**

**Date** 1971  
**From** D.V. Ossipov (Biological Research Institute, St. Petersburg (Leningrad) State University, Russia).  
**Origin** Isolated by D.V. Ossipov in 1971 from a small freshwater stream in the Ghizil-Agaj State Reserve (Azerbaijan).  
**Notes** Amoebae of this strain differ from known species of the genus *Amoeba* (see references below).  
**Bibliography** Goodkov et al., 2010; Ivanova et al., 2004; Podlipaeva and Goodkov, 2009; Sopina, 1993, 2000.

**AMOEBA SP. STRAIN BELOMOR**

**Date** 1985  
**From** D.B. Gromov (Institute of Cytology, St. Petersburg, Russia).  
**Origin** Established by Dmitry B. Gromov in 1985 by cloning of amoeba isolated from the freshwater lake at the Srednyi Island, Chupa Inlet (Kandalaksha Gulf, Western White Sea, North-Western Russia).  
**Notes** Amoebae of this strain differ from *Amoeba proteus* and belongs to the so-called “leningradensis-type” (Page and Kalinina, 1984).  
**Bibliography** Goodkov et al., 2010; Podlipaeva and Goodkov, 2009.
AMOEBA SP. STRAIN DG

Date 1993
From D.B. Gromov (Institute of Cytology, St. Petersburg, Russia).
Origin Established by Dmitry B. Gromov in 1985 by cloning amoeba isolated from the freshwater lake at the Sredniy Island, Chupa Inlet (Kandalaksha Gulf, Western White Sea, North-Western Russia).
Notes Amoebae of this strain differ from *Amoeba proteus* and belongs to the so-called “leningradensis-type” (Page and Kalinina, 1984), as well as amoebae of the strain Belomor (presumably, they belong to one and the same species).
Bibliography Podlipaeva et al., 2006.

AMOEBA AMAZONAS STRAIN AMAZ

Date 1969
From D.M. Prescott (Department of Molecular, Cell and Developmental Biology, University of Colorado, Boulder, Colorado, USA).
Origin Isolated from the Amazon River (Brazil) and named by D.M. Prescott.
Notes The species name, applied to the laboratory strain, was invalid for a long time, because it was given without taxonomically valid description (Flickinger, 1974; Page, 1988), though this amoeba represents a real species (Friz, 1992).

AMOEBA BOROKENSIS STRAIN BOR

Date 1974
From L.V. Kalinina (Institute of Cytology, St. Petersburg (Leningrad), Russia).
Origin Isolated from the pond in Borok settlement (Yaroslavl' province, Russia) by L.V. Kalinina in 1974.
Notes These amoebae till 1986 were considered as one of the strains of *A. proteus* (strain Bor) when they were described as a separate species (Kalinina et al., 1986).

AMOEBA INDICA STRAIN IND

Date 1985
From F.C. Page (Institute of Terrestrial Ecology, Cambridge University, UK).
Origin Isolated from a small pond in Bombay (former name of the city of Mumbai, India) by M.V.N. Rao in 1971.
Notes The species name, applied to the laboratory strain (Chatterjee and Rao, 1974; Rao and Chatterjee, 1974), was invalid for a long time, because it was given without taxonomically valid description (Page, 1988), though the differences of these amoebae from *Amoeba proteus* indicated repeatedly (Friz, 1987, 1992; Sopina, 1989, 2000; etc.).

Acknowledgements

This work was supported by the RFBR grant N 15-04-03451.

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