**Table S1−Species names, strain names, sources of isolates, and GenBank accession numbers of the ITS region**

**and D1/Dr2 domain sequences of fungal isolates from Walker Glacier and its foreland.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Species | Strain | Isolation source | Sampling site | Accession number |
| *Comoclathris lini* | G1-1-20-1 | glacier sediment | Site 0 | LC514920 |
| *Comoclathris lini* | G1-1-20-2 | glacier sediment | Site 0 | LC514921 |
| *Cladosporium cladosporioides* | G2-20-1 | glacier sediment | Site 0 | LC514922 |
| *Comoclathris lini* | G2-20-2 | glacier sediment | Site 0 | LC514923 |
| *Comoclathris lini* | G3-20-1 | glacier sediment | Site 0 | LC514924 |
| *Vishniacozyma victoriae* | G3-20-2 | glacier sediment | Site 0 | LC514925 |
| *Dioszegia fristingensis* | G3-20-3 | glacier sediment | Site 0 | LC514926 |
| *Kriegeriales* sp. | G1-4-1 | glacier sediment | Site 0 | LC514927 |
| *Preussia octomera* | G1-4-2 | glacier sediment | Site 0 | LC514928 |
| *Kriegeriales* sp. | G1-4-3 | glacier sediment | Site 0 | LC514929 |
| *Glaciozyma watsonii* | G1-4-4 | glacier sediment | Site 0 | LC514930 |
| *Kriegeriales* sp. | G2-4-1 | glacier sediment | Site 0 | LC514931 |
| *Dothideomycetes* sp. | G2-4-2 | glacier sediment | Site 0 | LC514932 |
| *Kriegeriales* sp. | G2-4-3 | glacier sediment | Site 0 | LC514933 |
| *Kriegeriales* sp. | G2-4-4 | glacier sediment | Site 0 | LC514934 |
| *Kriegeriales* sp. | G2-4-5 | glacier sediment | Site 0 | LC514935 |
| *Kriegeriales* sp. | G2-4-6 | glacier sediment | Site 0 | LC514936 |
| *Thelebolus microsporus* | G2-4-7 | glacier sediment | Site 0 | LC514937 |
| *Kriegeriales* sp. | G3-4-1 | glacier sediment | Site 0 | LC514938 |
| *Kriegeriales* sp. | G3-4-2 | glacier sediment | Site 0 | LC514939 |
| *Kriegeriales* sp. | G3-4-3 | glacier sediment | Site 0 | LC514940 |
| *Kriegeriales* sp. | G3-4-4 | glacier sediment | Site 0 | LC514941 |
| *Vishniacozyma ellesmerensis* | G3-4-5 | glacier sediment | Site 0 | LC514942 |
| *Kriegeriales* sp. | G3-4-6 | glacier sediment | Site 0 | LC514943 |
| *Kriegeriales* sp. | G3-4-7 | glacier sediment | Site 0 | LC514944 |
| *Vishniacozyma ellesmerensis* | G3-4-8 | glacier sediment | Site 0 | LC514945 |
| *Ascomycota* sp. | GR1-1-20-1 | glacier sediment | Site 1 | LC514946 |
| *Cladosporium cladosporioides* | GR1-1-20-2 | glacier sediment | Site 1 | LC514947 |
| *Comoclathris lini* | GR1-1-20-3 | glacier sediment | Site 1 | LC514948 |
| *Botrytis cinerea* | GR1-2-20-1 | glacier sediment | Site 1 | LC514949 |
| *Comoclathris lini* | GR1-2-20-2 | glacier sediment | Site 1 | LC514950 |
| *Phoma herbarum* | GR1-2-20-3 | glacier sediment | Site 1 | LC514951 |
| *Comoclathris lini* | GR1-3-20-1 | glacier sediment | Site 1 | LC514952 |
| *Comoclathris lini* | GR1-3-20-2 | glacier sediment | Site 1 | LC514953 |
| *Herpotrichiellaceae* sp. | GR1-3-20-3 | glacier sediment | Site 1 | LC514954 |
| *Kriegeriales* sp. | GR1-1-4-5 | glacier sediment | Site 1 | LC514955 |
| *Kriegeriales* sp. | GR1-1-4-6 | glacier sediment | Site 1 | LC514956 |
| *Kriegeriales* sp. | GR1-1-4-7 | glacier sediment | Site 1 | LC514957 |
| *Kriegeriales* sp. | GR1-1-4-8 | glacier sediment | Site 1 | LC514958 |
| *Kriegeriales* sp.*.* | GR1-2-4-2 | glacier sediment | Site 1 | LC514959 |
| *Cladosporium cladosporioides* | GR1-2-4-3 | glacier sediment | Site 1 | LC514960 |
| *Kriegeriales* sp. | GR1-2-4-4 | glacier sediment | Site 1 | LC514961 |
| *Kriegeriales* sp.*.* | GR1-2-4-5 | glacier sediment | Site 1 | LC514962 |
| *Kriegeriales* sp.*.* | GR1-2-4-6 | glacier sediment | Site 1 | LC514963 |
| *Kriegeriales* sp.*.* | GR1-2-4-7 | glacier sediment | Site 1 | LC514964 |
| *Kriegeriales* sp. | GR1-2-4-8 | glacier sediment | Site 1 | LC514965 |
| *Kriegeriales* sp. | GR1-2-4-9 | glacier sediment | Site 1 | LC514966 |
| *Kriegeriales* sp. | GR1-3-4-2 | glacier sediment | Site 1 | LC514967 |
| *Pseudogymnoascus pannorum* | GR1-3-4-3 | glacier sediment | Site 1 | LC514968 |
| *Mucor hiemalis* | GR2-1-20-1 | Sediment | Site 2 | LC514969 |
| *Mucor hiemalis* | GR2-1-20-2 | Sediment | Site 2 | LC514970 |
| *Mucor hiemalis* | GR2-2-20-1 | Sediment | Site 2 | LC514971 |
| *Mucor hiemalis* | GR2-2-20-2 | Sediment | Site 2 | LC514972 |
| *Dioszegia fristingensis* | GR2-3-20-3 | Sediment | Site 2 | LC514973 |
| *Mucor hiemalis* | GR2-3-20-4 | Sediment | Site 2 | LC514974 |
| *Dioszegia fristingensis* | GR2-3-20-8 | Sediment | Site 2 | LC514975 |
| *Mucor hiemalis* | GR2-1-4-1 | Sediment | Site 2 | LC514976 |
| *Mucor hiemalis* | GR2-1-4-2 | Sediment | Site 2 | LC514977 |
| *Dioszegia fristingensis* | GR2-2-4-1 | Sediment | Site 2 | LC514978 |
| *Mrakia roberti* | GR2-2-4-2 | Sediment | Site 2 | LC514979 |
| *Mrakia roberti* | GR2-2-4-3 | Sediment | Site 2 | LC514980 |
| *Dioszegia fristingensis* | GR2-2-4-4 | Sediment | Site 2 | LC514981 |
| *Mucor hiemalis* | GR2-2-4-5 | Sediment | Site 2 | LC514982 |
| *Mrakia roberti* | GR2-2-4-7 | Sediment | Site 2 | LC514983 |
| *Mrakia roberti* | GR2-2-4-8 | Sediment | Site 2 | LC514984 |
| *Mrakia roberti* | GR2-2-4-9 | Sediment | Site 2 | LC514985 |
| *Dioszegia frisingensis* | GR2-2-4-10 | Sediment | Site 2 | LC514986 |
| *Mrakia arctica* | GR2-3-4-1 | Sediment | Site 2 | LC514987 |
| *Dioszegia frisingensis* | GR2-3-4-2 | Sediment | Site 2 | LC514988 |
| *Mrakia arctica* | GR2-3-4-3 | Sediment | Site 2 | LC514989 |
| *Dioszegia fristingensis* | GR2-3-4-4 | Sediment | Site 2 | LC514990 |
| *Mrakia arctica* | GR2-3-4-5 | Sediment | Site 2 | LC514991 |
| *Mrakia arctica* | GR2-3-4-6 | Sediment | Site 2 | LC514992 |
| *Mrakia arctica* | GR2-3-4-7 | Sediment | Site 2 | LC514993 |
| *Mrakia arctica* | GR2-3-4-8 | Sediment | Site 2 | LC514994 |
| *Leucosporidium fragarium* | GR3-1-20-1 | Sediment | Site 3 | LC514995 |
| *Vishniacozyma victoriae* | GR3-1-20-2 | Sediment | Site 3 | LC514996 |
| *Phoma herbarum* | GR3-1-20-3 | Sediment | Site 3 | LC514997 |
| *Mortierella antarctica* | GR3-2-30-1 | Sediment | Site 3 | LC514998 |
| *Vishniacozyma victoriae* | GR3-2-30-2 | Sediment | Site 3 | LC514999 |
| *Vishniacozyma victoriae* | GR3-2-30-3 | Sediment | Site 3 | LC515000 |
| *Dioszegia fristingensis* | GR3-2-30-4 | Sediment | Site 3 | LC515001 |
| *Vishniacozyma victoriae* | GR3-2-30-5 | Sediment | Site 3 | LC515002 |
| *Phoma herbarum* | GR3-2-30-6 | Sediment | Site 3 | LC515003 |
| *Vishniacozyma victoriae* | GR3-2-30-7 | Sediment | Site 3 | LC515004 |
| *Thelebolus microcarpus* | GR3-3-20-2 | Sediment | Site 3 | LC515005 |
| *Thelebolus microcarpus* | GR3-3-20-4 | Sediment | Site 3 | LC515006 |
| *Thelebolus microcarpus* | GR3-3-20-5 | Sediment | Site 3 | LC515007 |
| *Leucosporidium fragarium* | GR3-3-20-6 | Sediment | Site 3 | LC515008 |
| *Vishniacozyma victoriae* | GR3-3-20-7 | Sediment | Site 3 | LC515009 |
| *Dioszegia fristingensis* | GR3-1-4-4 | Sediment | Site 3 | LC515010 |
| *Vishniacozyma victoriae* | GR3-1-4-5 | Sediment | Site 3 | LC515011 |
| *Vishniacozyma victoriae* | GR3-1-4-6 | Sediment | Site 3 | LC515012 |
| *Vishniacozyma victoriae* | GR3-1-4-8 | Sediment | Site 3 | LC515013 |
| *Vishniacozyma victoriae* | GR3-2-4-1 | Sediment | Site 3 | LC515014 |
| *Dioszegia fristingensis* | GR3-2-4-2 | Sediment | Site 3 | LC515015 |
| *Mrakia roberti* | GR3-2-4-3 | Sediment | Site 3 | LC515016 |
| *Dioszegia fristingensis* | GR3-2-4-4 | Sediment | Site 3 | LC515017 |
| *Mrakia hoshinonis* | GR3-2-4-5 | Sediment | Site 3 | LC515018 |
| *Vishniacozyma victoriae* | GR3-2-4-6 | Sediment | Site 3 | LC515019 |
| *Dioszegia fristingensis* | GR3-2-4-7 | Sediment | Site 3 | LC515020 |
| *Mortierella antarctica* | GR3-2-4-8 | Sediment | Site 3 | LC515021 |
| *Vishniacozyma victoriae* | GR3-3-4-1 | Sediment | Site 3 | LC515022 |
| *Mrakia roberti* | GR3-3-4-2 | Sediment | Site 3 | LC513023 |
| *Mrakiahoshinonis* | GR3-3-4-3 | Sediment | Site 3 | LC515024 |
| *Vishniacozyma victoriae* | GR3-3-4-4 | Sediment | Site 3 | LC515025 |
| *Holtermanniella festucosa* | GR3-3-4-5 | Sediment | Site 3 | LC515026 |
| *Mrakia hoshinonis* | GR3-3-4-6 | Sediment | Site 3 | LC515027 |
| *Vishniacozyma victoriae* | GR3-3-4-7 | Sediment | Site 3 | LC515028 |
| *Vishniacozyma victoriae* | GR3-3-4-8 | Sediment | Site 3 | LC515029 |
| Vishniacozyma victoriae | GR4-1-20-2 | Sediment | Site 4 | LC515030 |
| *Filobasidium globisporum* | GR4-1-20-3 | Sediment | Site 4 | LC515031 |
| *Filobasidium globisporum* | GR4-1-20-4 | Sediment | Site 4 | LC515032 |
| *Mortierella* sp. | GR4-1-20-5 | Sediment | Site 4 | LC515033 |
| *Mortierella alpina* | GR4-2-20-1 | Sediment | Site 4 | LC515034 |
| *Mortierella alpina* | GR4-2-20-2 | Sediment | Site 4 | LC515035 |
| *Mucor hiemalis* | GR4-2-20-3 | Sediment | Site 4 | LC515036 |
| *Vishniacozyma victoriae* | GR4-2-20-4 | Sediment | Site 4 | LC515037 |
| *Vishniacozyma victoriae* | GR4-2-20-5 | Sediment | Site 4 | LC515038 |
| *Phoma herbarum* | GR4-3-20-1 | Sediment | Site 4 | LC515039 |
| *Mortierella antarctica* | GR4-3-20-2 | Sediment | Site 4 | LC515040 |
| *Mrakia gelida* | GR4-1-4-1 | Sediment | Site 4 | LC515041 |
| *Mrakia hoshinonis* | GR4-1-4-2 | Sediment | Site 4 | LC515042 |
| *Mrakia hoshinonis* | GR4-1-4-3 | Sediment | Site 4 | LC515043 |
| *Mrakia arctica* | GR4-1-4-4 | Sediment | Site 4 | LC515044 |
| *Mrakia gelida* | GR4-1-4-5 | Sediment | Site 4 | LC515045 |
| *Mrakia gelida* | GR4-1-4-6 | Sediment | Site 4 | LC515046 |
| *Mrakia hoshinonis* | GR4-1-4-7 | Sediment | Site 4 | LC515047 |
| *Vishniacozyma victoriae* | GR4-2-4-1 | Sediment | Site 4 | LC515048 |
| *Mrakia hoshinonis* | GR4-2-4-2 | Sediment | Site 4 | LC515049 |
| *Mrakia gelida* | GR4-2-4-3 | Sediment | Site 4 | LC515050 |
| *Mrakia hoshinonis* | GR4-2-4-4 | Sediment | Site 4 | LC515051 |
| *Mrakia gelida* | GR4-2-4-5 | Sediment | Site 4 | LC515052 |
| *Mucor hiemalis* | GR4-2-4-6 | Sediment | Site 4 | LC515053 |
| *Mrakia gelida* | GR4-2-4-7 | Sediment | Site 4 | LC515054 |
| *Mrakia gelida* | GR4-3-4-1 | Sediment | Site 4 | LC515055 |
| *Mrakia hoshinonis* | GR4-3-4-2 | Sediment | Site 4 | LC515056 |
| *Mrakia gelida* | GR4-3-4-3 | Sediment | Site 4 | LC515057 |
| *Vishniacozyma victoriae* | GR4-3-4-4 | Sediment | Site 4 | LC515058 |
| *Mrakia gelida* | GR4-3-4-5 | Sediment | Site 4 | LC515059 |
| *Dioszegia fristingensis* | GR4-3-4-6 | Sediment | Site 4 | LC515060 |
| *Mrakia gelida* | GR4-3-4-7 | Sediment | Site 4 | LC515061 |
| *Vishniacozyma victoriae* | GR5-1-20-1 | Sediment | Site 5 | LC515062 |
| *Vishniacozyma victoriae* | GR5-1-20-3 | Sediment | Site 5 | LC515063 |
| *Vishniacozyma victoriae* | GR5-1-20-4 | Sediment | Site 5 | LC515064 |
| *Vishniacozyma victoriae* | GR5-1-20-6 | Sediment | Site 5 | LC515065 |
| *Mortierella alpina* | GR5-2-20-1 | Sediment | Site 5 | LC515066 |
| *Mucor hiemalis* | GR5-2-20-2 | Sediment | Site 5 | LC515067 |
| *Vishniacozyma victoriae* | GR5-2-20-4 | Sediment | Site 5 | LC515068 |
| *Vishniacozyma victoriae* | GR5-2-20-5 | Sediment | Site 5 | LC515069 |
| *Vishniacozyma victoriae* | GR5-3-20-1 | Sediment | Site 5 | LC515070 |
| *Phoma herbarum* | GR5-3-20-2 | Sediment | Site 5 | LC515071 |
| *Vishniacozyma victoriae* | GR5-3-20-3 | Sediment | Site 5 | LC515072 |
| *Vishniacozyma victoriae* | GR5-3-20-4 | Sediment | Site 5 | LC515073 |
| *Mucor hiemalis* | GR5-3-20-5 | Sediment | Site 5 | LC515074 |
| *Vishniacozyma victoriae* | GR5-3-20-6 | Sediment | Site 5 | LC515075 |
| *Mrakia gelida* | GR5-1-4-1 | Sediment | Site 5 | LC515076 |
| *Vishniacozyma victoriae* | GR5-1-4-2 | Sediment | Site 5 | LC515077 |
| *Mrakia gelida* | GR5-1-4-3 | Sediment | Site 5 | LC515078 |
| *Vishniacozyma victoriae* | GR5-1-4-4 | Sediment | Site 5 | LC515079 |
| *Mrakia gelida* | GR5-1-4-5 | Sediment | Site 5 | LC515080 |
| *Mrakia gelida* | GR5-1-4-6 | Sediment | Site 5 | LC515081 |
| *Vishniacozyma victoriae* | GR5-1-4-7 | Sediment | Site 5 | LC515082 |
| *Mrakia gelida* | GR5-2-4-1 | Sediment | Site 5 | LC515083 |
| *Mrakia gelida* | GR5-2-4-2 | Sediment | Site 5 | LC515084 |
| *Mrakia hoshinonis* | GR5-2-4-3 | Sediment | Site 5 | LC515085 |
| *Mrakia hoshinonis* | GR5-2-4-4 | Sediment | Site 5 | LC515086 |
| *Dioszegia fristingensis* | GR5-2-4-5 | Sediment | Site 5 | LC515087 |
| *Mrakia gelida* | GR5-2-4-6 | Sediment | Site 5 | LC515088 |
| *Mrakia hoshinonis* | GR5-3-4-2 | Sediment | Site 5 | LC515089 |
| *Mrakia gelida* | GR5-3-4-3 | Sediment | Site 5 | LC515090 |
| *Mrakia hoshinonis* | GR5-3-4-5 | Sediment | Site 5 | LC515091 |
| *Mrakia gelida* | GR5-3-4-6 | Sediment | Site 5 | LC515092 |
| *Vishniacozyma victoriae* | GR5-3-4-7 | Sediment | Site 5 | LC515093 |
| *Mrakia hoshinonis* | GR5-3-4-8 | Sediment | Site 5 | LC515094 |
| *Mrakia hoshinonis* | GR5-3-4-9 | Sediment | Site 5 | LC515095 |
| *Cladosporium cladosporioides* | GR5-3-4-10 | Sediment | Site 5 | LC515096 |
| *Vishniacozyma victoriae* | GR6-1-20-1 | Sediment | Site 6 | LC515097 |
| *Cladosporium cladosporioides* | GR6-1-20-2 | Sediment | Site 6 | LC515098 |
| *Mucor hiemalis* | GR6-1-20-3 | Sediment | Site 6 | LC515099 |
| *Vishniacozyma tephrensis* | GR6-1-20-4 | Sediment | Site 6 | LC515100 |
| *Vishniacozyma victoriae* | GR6-1-20-5 | Sediment | Site 6 | LC515101 |
| *Vishniacozyma victoriae* | GR6-1-20-6 | Sediment | Site 6 | LC515102 |
| *Cladosporium cladosporioides* | GR6-2-20-1 | Sediment | Site 6 | LC515103 |
| *Vishniacozyma victoriae* | GR6-2-20-2 | Sediment | Site 6 | LC515104 |
| *Vishniacozyma victoriae* | GR6-2-20-5 | Sediment | Site 6 | LC515105 |
| *Vishniacozyma victoriae* | GR6-2-20-7 | Sediment | Site 6 | LC515106 |
| *Mortierella amoeboidea* | GR6-3-20-1 | Sediment | Site 6 | LC515107 |
| *Cladosporium cladosporioides* | GR6-3-20-2 | Sediment | Site 6 | LC515108 |
| *Vishniacozyma victoriae* | GR6-3-20-3 | Sediment | Site 6 | LC515109 |
| *Vishniacozyma victoriae* | GR6-3-20-4 | Sediment | Site 6 | LC515110 |
| *Vishniacozyma victoriae* | GR6-3-20-6 | Sediment | Site 6 | LC515111 |
| *Vishniacozyma victoriae* | GR6-3-20-7 | Sediment | Site 6 | LC515112 |
| *Mrakia gelida* | GR6-1-4-1 | Sediment | Site 6 | LC515113 |
| *Vishniacozyma victoriae* | GR6-1-4-2 | Sediment | Site 6 | LC515114 |
| *Mrakia hoshinonis* | GR6-1-4-3 | Sediment | Site 6 | LC515115 |
| *Mrakia hoshinonis* | GR6-1-4-5 | Sediment | Site 6 | LC515116 |
| *Mrakia gelida* | GR6-1-4-6 | Sediment | Site 6 | LC515117 |
| *Mrakia gelida* | GR6-1-4-7 | Sediment | Site 6 | LC515118 |
| *Mrakia gelida* | GR6-2-4-1 | Sediment | Site 6 | LC515119 |
| *Mrakia gelida* | GR6-2-4-2 | Sediment | Site 6 | LC515120 |
| *Mrakia gelida* | GR6-2-4-3 | Sediment | Site 6 | LC515121 |
| *Mrakia gelida* | GR6-2-4-4 | Sediment | Site 6 | LC515122 |
| *Mrakia gelida* | GR6-2-4-5 | Sediment | Site 6 | LC515123 |
| *Mrakia gelida* | GR6-2-4-6 | Sediment | Site 6 | LC515124 |
| *Mrakia hoshinonis* | GR6-2-4-7 | Sediment | Site 6 | LC515125 |
| *Mrakia gelida* | GR6-3-4-1 | Sediment | Site 6 | LC515126 |
| *Vishniacozyma victoriae* | GR6-3-4-2 | Sediment | Site 6 | LC515127 |
| *Vishniacozyma victoriae* | GR6-3-4-3 | Sediment | Site 6 | LC515128 |
| *Mrakia hoshinonis* | GR6-3-4-4 | Sediment | Site 6 | LC515129 |
| *Mrakia hoshinonis* | GR6-3-4-5 | Sediment | Site 6 | LC515130 |
| *Mrakia gelida* | GR6-3-4-6 | Sediment | Site 6 | LC515131 |
| *Vishniacozyma victoriae* | GR6-3-4-7 | Sediment | Site 6 | LC515132 |
| *Mrakia gelida* | GR6-3-4-8 | Sediment | Site 6 | LC515133 |
| *Mortierella alpina* | GR7-1-20-1 | Sediment | Site 7 | LC515134 |
| *Mortierella alpina* | GR7-2-20-1 | Sediment | Site 7 | LC515135 |
| *Mortierella alpina* | GR7-2-20-2 | Sediment | Site 7 | LC515136 |
| *Mortierella antarctica* | GR7-3-20-1 | Sediment | Site 7 | LC515137 |
| *Mrakia gelida* | GR7-3-20-3 | Sediment | Site 7 | LC515138 |
| *Mrakia gelida* | GR7-1-4-1 | Sediment | Site 7 | LC515139 |
| *Mrakia gelida* | GR7-1-4-2 | Sediment | Site 7 | LC515140 |
| *Mrakia arctica* | GR7-1-4-3 | Sediment | Site 7 | LC515141 |
| *Mrakia gelida* | GR7-1-4-4 | Sediment | Site 7 | LC515142 |
| *Mrakia gelida* | GR7-1-4-5 | Sediment | Site 7 | LC515143 |
| *Mrakia gelida* | GR7-1-4-6 | Sediment | Site 7 | LC515144 |
| *Mrakia gelida* | GR7-1-4-7 | Sediment | Site 7 | LC515145 |
| *Mrakia gelida* | GR7-2-4-1 | Sediment | Site 7 | LC515146 |
| *Mrakia gelida* | GR7-2-4-2 | Sediment | Site 7 | LC515147 |
| *Mrakia gelida* | GR7-2-4-3 | Sediment | Site 7 | LC515148 |
| *Mrakia gelida* | GR7-2-4-4 | Sediment | Site 7 | LC515149 |
| *Mrakia gelida* | GR7-2-4-5 | Sediment | Site 7 | LC515150 |
| *Mrakia gelida* | GR7-2-4-6 | Sediment | Site 7 | LC515151 |
| *Mrakia gelida* | GR7-2-4-7 | Sediment | Site 7 | LC515152 |
| *Mrakia gelida* | GR7-3-4-1 | Sediment | Site 7 | LC515153 |
| *Mrakia gelida* | GR7-3-4-2 | Sediment | Site 7 | LC515154 |
| *Mrakia gelida* | GR7-3-4-3 | Sediment | Site 7 | LC515155 |
| *Mrakia gelida* | GR7-3-4-4 | Sediment | Site 7 | LC515156 |
| *Mrakia gelida* | GR7-3-4-5 | Sediment | Site 7 | LC515157 |
| *Mrakia gelida* | GR7-3-4-6 | Sediment | Site 7 | LC515158 |
| *Mortierella clonocystis* | GR8-1-20-1 | Sediment | Site 8 | LC515159 |
| *Mucor hiemalis* | GR8-1-20-2 | Sediment | Site 8 | LC515160 |
| *Mortierella clonocystis* | GR8-1-20-3 | Sediment | Site 8 | LC515161 |
| *Mucor hiemalis* | GR8-2-20-1 | Sediment | Site 8 | LC515162 |
| *Mucor hiemalis* | GR8-2-20-2 | Sediment | Site 8 | LC515163 |
| *Mortierella alpina* | GR8-3-20-1 | Sediment | Site 8 | LC515164 |
| *Mucor hiemalis* | GR8-3-20-2 | Sediment | Site 8 | LC515165 |
| *Mrakia hoshinonis* | GR8-1-4-1 | Sediment | Site 8 | LC515166 |
| *Mrakia gelida* | GR8-1-4-2 | Sediment | Site 8 | LC515167 |
| *Mrakia hoshinonis* | GR8-1-4-3 | Sediment | Site 8 | LC515168 |
| *Mrakia gelida* | GR8-1-4-4 | Sediment | Site 8 | LC515169 |
| *Mrakia gelida* | GR8-1-4-5 | Sediment | Site 8 | LC515170 |
| *Mrakia hoshinonis* | GR8-1-4-6 | Sediment | Site 8 | LC515171 |
| *Mrakia gelida* | GR8-1-4-7 | Sediment | Site 8 | LC515172 |
| *Mrakia hoshinonis* | GR8-1-4-8 | Sediment | Site 8 | LC515173 |
| *Mortierella clonocystis* | GR8-1-4-9 | Sediment | Site 8 | LC515174 |
| *Mrakia hoshinonis* | GR8-1-4-10 | Sediment | Site 8 | LC515175 |
| *Mrakia hoshinonis* | GR8-2-4-1 | Sediment | Site 8 | LC515176 |
| *Mrakia gelida* | GR8-2-4-2 | Sediment | Site 8 | LC515177 |
| *Mrakia hoshinonis* | GR8-2-4-3 | Sediment | Site 8 | LC515178 |
| *Mrakia hoshinonis* | GR8-2-4-4 | Sediment | Site 8 | LC515179 |
| *Mrakia hoshinonis* | GR8-2-4-5 | Sediment | Site 8 | LC515180 |
| *Mrakia gelida* | GR8-2-4-6 | Sediment | Site 8 | LC515181 |
| *Mrakia gelida* | GR8-2-4-7 | Sediment | Site 8 | LC515182 |
| *Mrakia hoshinonis* | GR8-2-4-8 | Sediment | Site 8 | LC515183 |
| *Mortierella clonocystis* | GR8-2-4-9 | Sediment | Site 8 | LC515184 |
| *Mrakia hoshinonis* | GR8-2-4-10 | Sediment | Site 8 | LC515185 |
| *Mrakia hoshinonis* | GR8-3-4-1 | Sediment | Site 8 | LC515186 |
| *Mrakia gelida* | GR8-3-4-2 | Sediment | Site 8 | LC515187 |
| *Mrakia gelida* | GR8-3-4-3 | Sediment | Site 8 | LC515188 |
| *Mrakia gelida* | GR8-3-4-4 | Sediment | Site 8 | LC515189 |
| *Mrakia gelida* | GR8-3-4-5 | Sediment | Site 8 | LC515190 |
| *Mrakia gelida* | GR8-3-4-6 | Sediment | Site 8 | LC515191 |
| *Mrakia gelida* | GR8-3-4-7 | Sediment | Site 8 | LC515192 |

**Table S2. The number of strains isolated from each sampling site.**

|  |  |  |
| --- | --- | --- |
| No. of strains | On glacier | Glacier foreland |
| **Zygomycetes** |  |  |
| *Mortierella* sp. | 0 | 1 |
| *Mortierella alpina* | 0 | 7 |
| *Mortierella antarctica* | 0 | 4 |
| *Mortierella amoeboidea* | 0 | 1 |
| *Mortierella clonocystis* | 0 | 4 |
| *Mucor hiemalis* | 0 | 17 |
| **Ascomycetes** |  |  |
| *Ascomycota* sp. | 1 | 0 |
| *Botrytis cinerea* | 1 | 0 |
| *Cladosporium cladosporioides* | 3 | 4 |
| *Comoclathris lini* | 8 | 0 |
| *Dothideomycetes sp.* | 1 | 0 |
| *Herpotrichiellaceae sp.* | 1 | 0 |
| *Phoma herbarum* | 1 | 4 |
| *Preussia octomera* | 1 | 0 |
| *Pseudogymnoascus pannorum* | 1 | 0 |
| *Thelebolus microcarpus* | 1 | 3 |
| **Basidiomycetes** |  |  |
| *Dioszegia fristingensis* | 1 | 14 |
| *Glaciozyma watsonii* | 1 | 0 |
| *Holtermanniella festucosa* | 0 | 1 |
| *Leucosporidium fragarium* | 0 | 4 |
| *Mrakia arctica* | 0 | 8 |
| *Mrakia gelida* | 0 | 64 |
| *Mrakia hoshinonis* | 0 | 32 |
| *Mrakia robertii* | 0 | 7 |
| *Kriegeriales* sp. | 25 | 0 |
| *Vishniacozyma ellesmerensis* | 2 | 0 |
| *Vishniacozyma tephrensis* | 0 | 1 |
| *Vishniacozyma victoriae* | 1 | 48 |
| Total | 49 | 224 |