

State of the Science

Changes in Nomenclature

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DEPARTMENT OF
**PATHOLOGY AND LABORATORY
MEDICINE**
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Disclaimers

- I acknowledge that the lists contained herein are incomplete – there's not enough time to discuss everything
- Not all the nomenclature updates I've listed are recent; however, many of the older ones are not widely known/adopted
- We're going to focus on nomenclature changes to previously known microorganisms and viruses – we can talk about new taxa another time



Outline

- Bacterial nomenclature changes
- Ectoparasite nomenclature changes
- Fungal nomenclature changes
- Helminth and protozoan nomenclature changes
- Viral nomenclature changes



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Introduction

- *Why do microbial nomenclature changes occur?*
 - Modern microbial taxonomy, comprising identification, classification, and nomenclature, relies heavily on information gleaned from genome sequence data
 - Evolutionary relationships between organisms / viruses are most useful and informative for classification
 - Internationally recognized and scientifically accurate names based on the newest/best data are subsequently assigned



Bacterial nomenclature changes

TABLE 2 Revised bacterial taxa from January 2018 through December 2019

Organism type and former name	Revised name	Other information	Reference(s)
Gram-positive bacilli			
<i>Turicella otitidis</i>	<i>Corynebacterium otitidis</i> comb. nov.	Initial description of <i>T. otitidis</i> isolated from the ear of a patient with otitis media in reference 74; based on phylogenomic and comparative genomic analyses, <i>Turicella</i> is reclassified in the genus <i>Corynebacterium</i>	75
<i>Streptomyces griseoplanus</i>	<i>Streptacidiphilus griseoplanus</i> comb. nov.	Initial description provided in reference 143; in addition, optimal growth is at 28°C	109
Gram-negative bacilli			
<i>Acinetobacter dijkshoorniae</i>	<i>Acinetobacter lactucae</i>	Initial description of <i>A. dijkshoorniae</i> taxonomic status in reference 144; clinical significance and features summarized in reference 3	145
Bisgaard taxon 5	<i>Caviibacterium pharyngocola</i> gen. nov., sp. nov.	Initial description of Bisgaard taxon 5 in reference 146; new taxonomy accommodates all isolates in taxon 5; reference 147 describes clinical human infection derived from a guinea pig bite wound	147
<i>Shewanella haliotis</i>	<i>Shewanella algae</i>	Initial description of <i>S. haliotis</i> in reference 148; clinical significance in hepatobiliary disease and soft tissue infection summarized in references 149–151	152
<i>Pantoea calida</i>	<i>Mixta calida</i> comb. nov.	Initial description of <i>P. calida</i> in reference 153; organism often associated with infant formula production; clinical significance in postsurgical meningitis, bacteremia, and antimicrobial resistance reservoirs summarized in references 154–156	80
<i>Pantoea intestinalis</i>	<i>Mixta intestinalis</i> comb. nov.	Initial description of <i>P. intestinalis</i> in reference 157; originally isolated from feces of healthy human subject	80



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<i>Borrelia afzelii</i>	<i>Borrelia afzelii</i> comb. nov.	Initial description of <i>B. afzelii</i> in reference 158	76 ^a
<i>Borrelia americana</i>	<i>Borrelia americana</i> comb. nov.	Initial description of <i>B. americana</i> in reference 159	76 ^a
<i>Borrelia valaisiana</i>	<i>Borrelia valaisiana</i> comb. nov.	Initial description of <i>B. valaisiana</i> in reference 160; recovery from human clinical specimen documented in reference 161	76 ^a
<i>Photorhabdus asymbiotica</i> subsp. <i>australis</i>	<i>Photorhabdus australis</i> sp. nov.	Initial description of <i>P. asymbiotica</i> subsp. <i>australis</i> in reference 162; description of clinical isolates in references 162 and 163	81
<i>Photorhabdus asymbiotica</i> subsp. <i>asymbiotica</i>	<i>Photorhabdus asymbiotica</i>	Initial description of <i>P. asymbiotica</i> subsp. <i>asymbiotica</i> in reference 163; description of clinical significance in references 164 and 165	81
<i>Photorhabdus luminescens</i> subsp. <i>luminescens</i>	<i>Photorhabdus luminescens</i>	<i>P. luminescens</i> subsp. <i>luminescens</i> initially classified as <i>Xenorhabdus</i> spp. (166); clinically significant human infections, often found in Australia and United States, have been reviewed (167–170)	81
<i>Methylobacterium extorquens</i>	<i>Methylobacterium extorquens</i> comb. nov.	<i>M. extorquens</i> initially classified as <i>Protomonas extorquens</i> (171) and known by a number of synonyms (172); report of catheter-related infection in reference 173	84
<i>Methylobacterium aminovorans</i>	<i>Methylobacterium aminovorans</i> comb. nov.	Initial description of <i>M. aminovorans</i> in reference 174; case report of hospital-acquired bacteremia (catheter related) in reference 175	84
<i>Methylobacterium podarium</i>	<i>Methylobacterium podarium</i> comb. nov.	Initial description of <i>M. podarium</i> in reference 176; clinical relevance discussed in references 176 and 177	84

(Continued on following page)



Bacterial nomenclature changes

Organism type and former name	Revised name	Other information	Reference(s)
<i>Methylobacterium rhodesianum</i>	<i>Methylorubrum rhodesianum</i> comb. nov.	Initial description of <i>M. rhodesianum</i> in reference 178; <i>Methylobacterium lusitanum</i> is synonym designation (179); case report of hospital-acquired bacteremia (catheter related) in reference 175	84
<i>Methylobacterium thiocyanatum</i>	<i>Methylorubrum thiocyanatum</i> comb. nov.	Initial description of <i>M. thiocyanatum</i> in reference 180; cases of bacteremia discussed in references 175 and 181	84
<i>Methylobacterium zatmanii</i>	<i>Methylorubrum zatmanii</i> comb. nov.	Initial description of <i>M. zatmanii</i> in reference 178; case report of septicemia in reference 182	84
<i>Enterobacter cloacae</i> complex Hoffmann cluster III	<i>Enterobacter hormaechei</i> subsp. <i>hoffmannii</i> subsp. nov.	Initial description of isolate in reference 183; taxonomic designation made on basis of genome computational analysis	32 ^b
<i>Enterobacter cloacae</i> complex Hoffmann cluster IV	<i>Enterobacter roggenkampii</i> sp. nov.	Initial description of isolate in reference 183; taxonomic designation made on basis of genome computational analysis	32 ^b
<i>Mycoplasma arginini</i>	<i>Mycoplasmopsis arginini</i> comb. nov.	Initial description of <i>M. arginini</i> in reference 184; report of detection from human specimens in reference 185	85 ^b
<i>Mycoplasma arthritidis</i>	<i>Metamycoplasma arthritidis</i> comb. nov.	Initial description of <i>M. arthritidis</i> in reference 186; reports of detection from human specimens in references 187 and 188	85 ^b
<i>Mycoplasma buccale</i>	<i>Metamycoplasma buccale</i> comb. nov.	Initial description of <i>M. buccale</i> in reference 189	85 ^b
<i>Mycoplasma canis</i>	<i>Mycoplasmopsis canis</i> comb. nov.	Initial description of <i>M. canis</i> in reference 190; report of isolation from human specimens in reference 191	85 ^b
<i>Mycoplasma caviae</i>	<i>Mycoplasmopsis caviae</i> comb. nov.	Initial description of <i>M. caviae</i> in reference 192; report of detection from human specimen in reference 193	85 ^b
<i>Mycoplasma edwardii</i>	<i>Mycoplasmopsis edwardii</i> comb. nov.	Initial description of <i>M. edwardii</i> in reference 194; case report of canine bite-induced puncture of peritoneal dialysis tubing in reference 195	85 ^b



Bacterial nomenclature changes

<i>Mycoplasma faucium</i>	<i>Metamycoplasma faucium</i> comb. nov.	Initial description of <i>M. faucium</i> in reference 189	85 ^b
<i>Mycoplasma fermentans</i>	<i>Mycoplasmopsis fermentans</i> comb. nov.	Initial description of <i>M. fermentans</i> in reference 190	85 ^b
<i>Mycoplasma genitalium</i>	<i>Mycoplasmoides genitalium</i> comb. nov.	Initial description of <i>M. genitalium</i> in reference 196	85 ^b
<i>Mycoplasma hominis</i>	<i>Metamycoplasma hominis</i> comb. nov.	Initial description of <i>M. hominis</i> in reference 197	85 ^b
<i>Mycoplasma lipophilum</i>	<i>Mycoplasmopsis lipophila</i> comb. nov.	Initial description of <i>M. lipophilum</i> in reference 198	85 ^b
<i>Mycoplasma maculosum</i>	<i>Mycoplasmopsis maculosa</i> comb. nov.	Initial description of <i>M. maculosum</i> in reference 190; case report of meningitis in reference 199	85 ^b
<i>Mycoplasma orale</i>	<i>Metamycoplasma orale</i> comb. nov.	Initial description of <i>M. orale</i> in reference 200	85 ^b
<i>Mycoplasma penetrans</i>	<i>Malacoplasma penetrans</i> comb. nov.	Initial description of <i>M. penetrans</i> in reference 201	85 ^b
<i>Mycoplasma pirum</i>	<i>Mycoplasmoides pirum</i> comb. nov.	Initial description of <i>M. pirum</i> in reference 202	85 ^b
<i>Mycoplasma pneumoniae</i>	<i>Mycoplasmoides pneumoniae</i> comb. nov.	Initial description of <i>M. pneumoniae</i> in reference 203	85 ^b
<i>Mycoplasma primatum</i>	<i>Mycoplasmopsis primatum</i> comb. nov.	Initial description of <i>M. primatum</i> in reference 204	85 ^b
<i>Mycoplasma pulmonis</i>	<i>Mycoplasmopsis pulmonis</i> comb. nov.	Initial description of <i>M. pulmonis</i> in reference 186; report of detection in humans in reference 205	85 ^b
<i>Mycoplasma salivarium</i>	<i>Metamycoplasma salivarium</i> comb. nov.	Initial description of <i>M. salivarium</i> in reference 190	85 ^b

(Continued on following page)



Bacterial nomenclature changes

Organism type and former name	Revised name	Other information	Reference(s)
<i>Burkholderia endofungorum</i>	<i>Mycetohabitans endofungorum</i> comb. nov.	Initial description of <i>B. endofungorum</i> in reference 206; characterization of blood isolate forwarded to the CDC in reference 207	208 ^b
<i>Burkholderia rhizoxinica</i>	<i>Mycetohabitans rhizoxinica</i> comb. nov.	Initial description of <i>B. rhizoxinica</i> in reference 206; characterization of blood and wound isolates forwarded to the CDC in reference 207	208 ^b
<i>Enterobacter muelleri</i>	<i>Enterobacter asburiae</i>	<i>E. muelleri</i> , originally described in reference 209, is a later heterotypic synonym of <i>E. asburiae</i>	32 ^c
<i>Mycoplasma felis</i>	<i>Mycoplasmopsis felis</i> comb. nov.	Initial description of <i>M. felis</i> in reference 210; reports of detection in humans in references 211, 212	85 ^d
<i>Acinetobacter</i> genospecies 8	<i>Acinetobacter pseudolwoffii</i> sp. nov.	Initial description of 12 <i>Acinetobacter</i> genospecies in reference 213; characterization of outpatient conjunctival and inpatient vaginal isolates in reference 214	215 ^e
<i>Elizabethkingia</i> genomospecies 3	<i>Elizabethkingia bruuniana</i> sp. nov.	Five distinct groups of <i>Elizabethkingia</i> strains were initially characterized by DNA-DNA hybridization (216); clinical significance reviewed in reference 78	54 ^e
<i>Elizabethkingia</i> genomospecies 4	<i>Elizabethkingia ursingii</i> sp. nov.	Five distinct groups of <i>Elizabethkingia</i> strains were initially characterized by DNA-DNA hybridization (216); clinical significance reviewed in reference 79	54 ^e
<i>Klebsiella pneumoniae</i> phylogenetic group 5	<i>Klebsiella variicola</i> subsp. <i>tropica</i> subsp. nov.	<i>K. pneumoniae</i> phylogenetic group 5 initially described in reference 83; isolates described in reference 44 were derived from human feces (Madagascar)	44 ^f
	<i>Klebsiella variicola</i> subsp. <i>variicola</i> subsp. nov.	By code, second subspecies automatically created as a result of novel <i>Klebsiella variicola</i> subsp. <i>tropica</i> subsp. nov. designation	44 ^f



Bacterial nomenclature changes

Gram-positive anaerobes			
<i>Eubacterium budayi</i>	<i>Clostridium budayi</i> comb. nov.	Isolated from a cadaver by Buday and later from nonhuman sources by Prevot (217); description identical to that proposed by Prevot	61
<i>Eubacterium nitritogenes</i>	<i>Clostridium nitritogenes</i> comb. nov.	Description identical to that of Prevot (217) with review by Wade (218); isolated from human infections and soil	61
<i>Eubacterium combesii</i>	<i>Clostridium combesii</i> comb. nov.	Description reviewed by Wade (218); isolated from human infections and African soil. Dobritsa et al. (219) proposed to reclassify <i>E. combesii</i> as a later synonym of <i>Clostridium botulinum</i> . <i>E. combesii</i> does not produce botulinum toxin.	61
<i>Propionibacterium acnes</i> subsp. <i>elongatum</i>	<i>Cutibacterium acnes</i> subsp. <i>elongatum</i>	Description is as reported by Dekio et al. (91); strains can be found on the human skin of the lower back (associated not with acne but with progressive macular hypomelanosis)	92
<i>Propionibacterium acnes</i> subsp. <i>acnes</i>	<i>Cutibacterium acnes</i> subsp. <i>acnes</i>	Description is the same as given for <i>P. acnes</i> by McDowell et al. (220) along with list of mass ions by MALDI-TOF MS (92) and G+C content of the type strain genome of 60.0 mol%	92

(Continued on following page)



Bacterial nomenclature changes

Organism type and former name	Revised name	Other information	Reference(s)
<i>Propionibacterium acnes</i> subsp. <i>defendens</i>	<i>Cutibacterium acnes</i> subsp. <i>defendens</i>	Description is the same as previously provided by Nouioui et al. (93); prominent mass ions obtained by MALDI-TOF MS are provided in reference 92	92
<i>Gordonibacter faecihominis</i>	<i>Gordonibacter urolithinfaciens</i>	<i>G. faecihominis</i> is now considered a later heterotypic synonym of <i>Gordonibacter urolithinfaciens</i> , a Gram-positive anaerobic bacillus isolated from the feces of a healthy male (221)	222
<i>Pseudopropionibacterium propionicum</i>	<i>Arachnia propionica</i> emend.	Properties of the emended species are as reported in reference 90	64, 90
<i>Pseudopropionibacterium rubrum</i>	<i>Arachnia rubra</i> comb. nov.	Properties provided in a novel taxon report (63) and IJSEM addition (141) (Table 1)	64
<i>Ruminococcus faecis</i>	<i>Mediterraneibacter faecis</i> comb. nov.	Properties are as reported for <i>Ruminococcus faecis</i> in reference 223	94
<i>Ruminococcus lactaris</i>	<i>Mediterraneibacter lactaris</i> comb. nov.	Description is the same as that given for <i>Ruminococcus lactaris</i> in reference 224	94
<i>Ruminococcus torques</i>	<i>Mediterraneibacter torques</i> comb. nov.	Description is the same as that given in reference 225	94
<i>Ruminococcus gnavus</i>	<i>Mediterraneibacter gnavus</i> comb. nov.	Description is the same as that for <i>Ruminococcus gnavus</i> in reference 224	94
<i>Clostridium glycyrrhizinilyticum</i>	<i>Mediterraneibacter glycyrrhizinilyticum</i> comb. nov.	Description is the same as that in reference 226	94
<i>Propionibacterium namnetense</i>	<i>Cutibacterium namnetense</i>	Description is the same as that in reference 3	93 ^b



Bacterial nomenclature changes

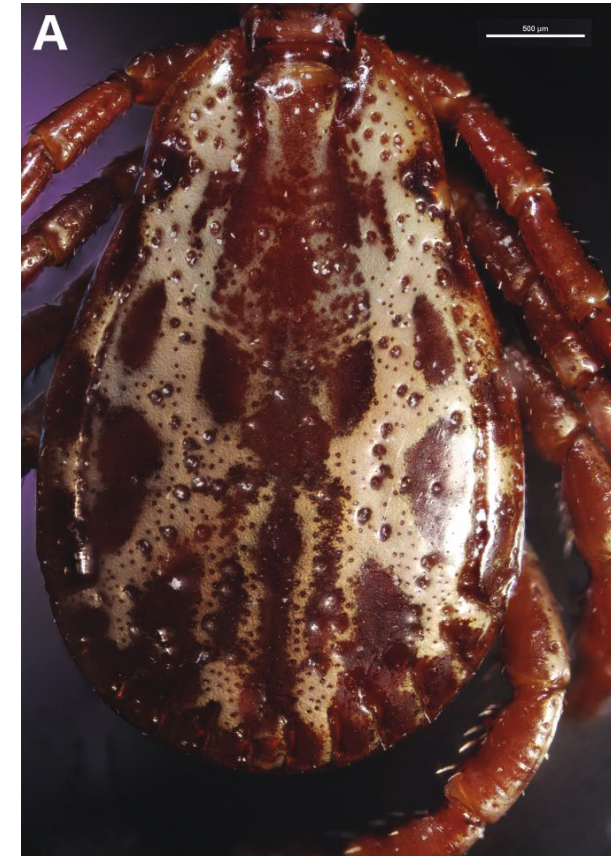
- And we can't ignore *Ochrobactrum* → *Brucella*

Ochrobactrum species	New classification
<i>Ochrobactrum anthropi</i> [#]	<i>Brucella anthropi</i> [#]
<i>Ochrobactrum ciceri</i>	<i>Brucella ciceri</i>
<i>Ochrobactrum cytisi</i>	<i>Brucella cytisi</i>
<i>Ochrobactrum daejeonense</i>	<i>Brucella daejeonensis</i>
<i>Ochrobactrum endophyticum</i>	<i>Brucella endophytica</i>
<i>Ochrobactrum gallinifaecis</i>	<i>Brucella gallinifaecis</i>
<i>Ochrobactrum grignonense</i>	<i>Brucella grignonensis</i>
<i>Ochrobactrum haematophilum</i>	<i>Brucella haematophila</i>
<i>Ochrobactrum intermedium</i> [#]	<i>Brucella intermedia</i> [#]
<i>Ochrobactrum lupini</i>	<i>Brucella lupini</i>
<i>Ochrobactrum oryzae</i>	<i>Brucella oryzae</i>
<i>Ochrobactrum pecoris</i>	<i>Brucella pecoris</i>
<i>Ochrobactrum pituitosum</i>	<i>Brucella pituitosa</i>
<i>Ochrobactrum pseudointermedium</i>	<i>Brucella pseudointermedia</i>
<i>Ochrobactrum pseudogrignonense</i>	<i>Brucella pseudogrignonensis</i>
<i>Ochrobactrum rhizosphaerae</i>	<i>Brucella rhizosphaerae</i>
<i>Ochrobactrum thiophenivorans</i>	<i>Brucella thiophenivorans</i>
<i>Ochrobactrum tritici</i>	<i>Brucella tritici</i>



Ectoparasite nomenclature changes

- *Dermacentor similis*
 - A new species name for *Dermacentor* “*variabilis*” animals found west of the U.S. Rocky Mountains



Fungal nomenclature changes

TABLE 2 List of revised fungal taxa from 2018 through 2019

Previous species name	Revised species name	Order	Reference no.	MB accession no. ^a
<i>Candida infanticola</i>	<i>Wickerhamiella infanticola</i>	<i>Saccharomycetales</i>	22	MB 815725
<i>Candida pararugosa</i>	<i>Wickerhamiella pararugosa</i>	<i>Saccharomycetales</i>	22	MB 815736
<i>Chaetomium atrobrunneum</i>	<i>Amesia atrobrunnea</i>	<i>Sordariales</i>	36	MB 818 832
<i>Diutina (Candida) mesorugosa</i>	<i>Diutina rugosa</i>	<i>Saccharomycetales</i>	24	Not applicable
<i>Fusarium solani</i> species complex 6 (FSSC6)	<i>Fusarium metavorans</i>	<i>Hypocreales</i>	18	MB 821742
<i>Fusarium metavorans</i>	<i>Neocosmospora metavorans</i>	<i>Hypocreales</i>	20	MB 823607
<i>Fusarium solani</i> species complex 9 (FSSC9), <i>Cylindrocarpon tonkinense/Fusarium tonkinense</i>	<i>Neocosmospora tonkinensis</i>	<i>Hypocreales</i>	20	MB 822904
<i>Fusarium solani</i> species complex 7 (FSSC7)	<i>Neocosmospora gamsii</i>	<i>Hypocreales</i>	20	MB 822899
<i>Fusarium solani</i> species complex 20 (FSSC20)	<i>Neocosmospora suttoniana</i>	<i>Hypocreales</i>	20	MB 822903
<i>Fusarium solani</i> species complex 43 (FSSC43)	<i>Neocosmospora catenata</i>	<i>Hypocreales</i>	20	MB 822898
<i>Fusarium keratoplasticum</i>	<i>Neocosmospora keratoplastica</i>	<i>Hypocreales</i>	20	MB 822901
<i>Fusarium lichenicola</i>	<i>Neocosmospora lichenicola</i>	<i>Hypocreales</i>	20	MB 822900
<i>Fusarium petrophila</i>	<i>Neocosmospora petroliphila</i>	<i>Hypocreales</i>	20	MB 822902
<i>Emmonsia crescens</i>	<i>Emergomyces crescens</i>	<i>Onygenales</i>	7	MB 330349
<i>Emmonsia soli</i>	<i>Emergomyces soli</i>	<i>Onygenales</i>	6, 7	MB 821087

^aMB, MycoBank.



Fungal nomenclature changes

TABLE 3 List of how taxonomic revisions affected basidiomycete and ascomycete yeasts of medical importance

Previous species name	Revised species name	Order	Reference no.	MB accession no.
<i>Candida bracarensis</i>	<i>Nakaseomyces bracarensis</i> ^a	Saccharomycetales	37	NA ^b
<i>Candida catenulata</i>	<i>Diutina catenulata</i>	Saccharomycetales	23	MB 813778
<i>Candida eremophila</i>	<i>Pichia eremophila</i>	Saccharomycetales	38	MB 508435
<i>Candida etchellsii</i>	<i>Starmerella etchellsii</i>	Saccharomycetales	39	MB 823618
<i>Candida fabianii</i>	<i>Cyberlindnera fabianii</i>	Saccharomycetales	40	MB 534382
<i>Candida famata</i>	<i>Debaryomyces hansenii</i>	Saccharomycetales	41	MB 296478
<i>Candida fermentati</i>	<i>Meyerozyma caribbica</i>	Saccharomycetales	42	MB 513462
<i>Candida glabrata</i>	<i>Nakaseomyces glabrata</i> ^a	Saccharomycetales	37	NA
<i>Candida inconspicua</i>	<i>Pichia cactophila</i>	Saccharomycetales	43	MB 320493
<i>Candida kefyr</i>	<i>Kluyveromyces marxianus</i>	Saccharomycetales	44	MB 316062
<i>Candida krusei</i>	<i>Pichia kudriavzevii</i>	Saccharomycetales	45	MB 337013
<i>Candida guilliermondii</i>	<i>Meyerozyma guilliermondii</i>	Saccharomycetales	42	MB 513463
<i>Candida lambica</i>	<i>Pichia fermentans</i>	Saccharomycetales	46	MB 252130
<i>Candida lipolytica</i>	<i>Yarrowia lipolytica</i>	Saccharomycetales	47	MB 108643
<i>Candida lusitanae</i>	<i>Clavispora lusitanae</i>	Saccharomycetales	48	MB 111257
<i>Candida nivariensis</i>	<i>Nakaseomyces nivariensis</i> ^a	Saccharomycetales	49	NA
<i>Candida norvegensis</i>	<i>Pichia norvegensis</i>	Saccharomycetales	50	MB 320514
<i>Candida pelliculosa</i>	<i>Wickerhamomyces anomalus</i>	Saccharomycetales	38	MB 508390
<i>Candida pintolopesii</i>	<i>Kazachstania telluris</i>	Saccharomycetales	51	MB 487688
<i>Candida pulcherrima</i>	<i>Metschnikowia pulcherrima</i>	Saccharomycetales	52	MB 334124
<i>Candida rugosa</i>	<i>Diutina rugosa</i>	Saccharomycetales	23	MB 813768
<i>Candida sorbosivorans</i>	<i>Starmerella sorbosivorans</i>	Saccharomycetales	39	MB 823645
<i>Candida utilis</i>	<i>Cyberlindnera jadinii</i>	Saccharomycetales	40	MB 534383
<i>Cryptococcus albidus</i>	<i>Naganishia albidus</i>	Filobasidiales	27	MB 813141
<i>Cryptococcus curvatus</i>	<i>Cutaneotrichosporon curvatum</i>	Trichosporonales	27	MB 818663
<i>Cryptococcus diffluens</i>	<i>Naganishia diffluens</i>	Filobasidiales	27	MB 813172
<i>Cryptococcus laurentii</i>	<i>Papiliotrema laurentii</i>	Tremellales	27	MB 813295
<i>Pseudozyma antarctica</i>	<i>Moesziomyces antarcticus</i>	Ustilaginales	53	MB 812714
<i>Pseudozyma aphidis</i>	<i>Moesziomyces aphidis</i>	Ustilaginales	53	MB 812715
<i>Pseudozyma parantarctica</i>	<i>Moesziomyces parantarcticus</i>	Ustilaginales	53	MB 812717
<i>Rhodotorula minuta</i>	<i>Cystobasidium minutum</i>	Cystobasidiales	54	MB 809340
<i>Rhodotorula slooffiae</i>	<i>Cystobasidium slooffiae</i>	Cystobasidiales	54	MB 809341
<i>Stephanosascus ciferrii</i>	<i>Trichomonascus ciferrii</i>	Saccharomycetales	55	MB 530083
<i>Trichosporon cutaneum</i>	<i>Cutaneotrichosporon cutaneum</i>	Trichosporonales	27	MB 813398
<i>Trichosporon loubieri</i>	<i>Apiotrichum loubieri</i>	Trichosporonales	27	MB 813417
<i>Trichosporon mucoides</i>	<i>Cutaneotrichosporon mucoides</i>	Trichosporonales	27	MB 813402
<i>Trichosporon mycotoxinivorans</i>	<i>Apiotrichum mycotoxinivorans</i>	Trichosporonales	27	MB 813420

^aMembers of the *Nakaseomyces* clade that currently lack formal registration with MycoBank (MB).

^bNA, not available.



Helminth and protozoan nomenclature changes

- Revised helminth and protozoa taxa (2023 paper)

TABLE 1 Changes in parasite taxa from June 2020 to June 2022

Category	Current scientific name	Previous scientific name	Clinical disease	Reason for Nomenclatural Changes	Reporting suggestions	References(s)
Blood and Tissue Protozoa	<i>Babesia motasi</i>	<i>Babesia</i> strain KO1	Babesiosis	Phylogenetic analysis of 18S rRNA, COB, and cox3 showed <i>Babesia</i> KO1 is nestled within the <i>B. motasi</i> clade along with ovine strains	<i>Babesia motasi</i>	6
Tissue Helminths	<i>Dirofilaria</i> sp. genotype Hong Kong	<i>Dirofilaria hongkongensis</i>	Subcutaneous dirofilariasis	Originally described as ' <i>Candidatus</i> <i>Dirofilaria hongkongensis</i> ' and failed to designate a holotype or provide a morphological description	<i>Dirofilaria</i> sp.; <i>Dirofilaria</i> sp. genotype Hong Kong	2, 11
	<i>Spirometra mansonii</i>	<i>Spirometra ranarum</i>	Sparganosis	Molecular and morphological analyses have shown that previous records of <i>Spirometra ranarum</i> are <i>S. mansonii</i>	<i>Spirometra mansonii</i>	15, 16



Helminth and protozoan nomenclature changes

TABLE 3 Previous nomenclatural changes that have not yet been broadly adapted by the medical community

Category	Current scientific name	Previous scientific name	Reference(s)
Protozoa	<i>Balantioides coli</i>	<i>Balantidium coli</i> , <i>Neobalantidium coli</i>	1, 2
	<i>Endotrypanum equatoriensis</i>	<i>Leishmania equatoriensis</i>	1
	<i>Endotrypanum colombiense</i>	<i>Leishmania colombiense</i>	1
	<i>Giardia duodenalis</i>	<i>Giardia lamblia</i> , <i>G. intestinalis</i>	3
	<i>Iodamoeba bütschlii</i>	<i>Iodamoeba bütschlii</i> ^a	4
Helminths			
Nematodes	<i>Ascaris lumbricoides</i>	<i>Ascaris suum</i>	3
	<i>Calodium hepaticum</i>	<i>Capillaria hepatica</i>	4, 47
	<i>Eucolus aerophilus</i>	<i>Capillaria aerophila</i>	4, 47
	<i>Paracapillaria philippinensis</i>	<i>Capillaria philippinensis</i>	47
Cestodes	<i>Adenocephalus pacificus</i>	<i>Diphyllobothrium pacificum</i>	2
	<i>Dibothriocephalus latus</i> ^b	<i>Diphyllobothrium latum</i>	2
	<i>Rodentolepis nana</i>	<i>Hymenolepis nana</i> ^c	48
	<i>Taenia solium</i>	<i>Taenia asiatica</i>	1

^aNote that this spelling of “bütschlii” has been incorrectly used in the past but this does not comply with the rules of taxonomy.

^bSeveral other, less common *Diphyllobothrium* species have also been moved to the genus *Dibothriocephalus*; see [2].

^cThe related cestode, *Hymenolepis diminuta*, remains in the genus *Hymenolepis*.



Viral nomenclature changes

TABLE 1 Selected renamed viruses infecting humans from the International Committee on Taxonomy of Viruses 2021 taxonomy release^a

Family	Genus	Species	Virus (abbreviation)	Change	Note(s)	Reference
<i>Bornaviridae</i>	<i>Orthobornavirus</i>	<i>Orthobornavirus bornaense</i>	Borna disease virus (BDV)	Renamed; previous name Mammalian 1 orthobornavirus (species)	Causes neurological disease in warm-blooded animals, including humans	5
<i>Hepeviridae</i>	<i>Paslahepevirus</i>	<i>Paslahepevirus balayani</i>	Hepatitis E virus (HEV)	Renamed; previous name Orthohepevirus A (species), Orthohepevirus (genus)	Causes hepatitis	6
<i>Kolmioviridae</i>	<i>Deltavirus</i>	<i>Deltavirus italiense</i>	Hepatitis D virus (HDV)	Renamed; previous name Hepatitis delta virus (species)	Causes hepatitis	7
<i>Matonaviridae</i>	<i>Rubivirus</i>	<i>Rubivirus rubella</i>	Rubella virus (RuV)	Renamed; previous name Rubella virus (species)	Causes rubella	8
<i>Orthomyxoviridae</i>	<i>Alphainfluenzavirus</i>	<i>Alphainfluenzavirus influenzae</i>	Influenza A virus (FLUAV)	Renamed; previous name Influenza A virus (species)	Causes respiratory disease (influenza)	10
<i>Orthomyxoviridae</i>	<i>Betainfluenzavirus</i>	<i>Betainfluenzavirus influenzae</i>	Influenza B virus (FLUBV)	Renamed; previous name Influenza B virus (species)	Causes respiratory disease (influenza)	10
<i>Orthomyxoviridae</i>	<i>Gammainfluenzavirus</i>	<i>Gammainfluenzavirus influenzae</i>	Influenza C virus (FLUCV)	Renamed; previous name Influenza C virus (species)	Causes respiratory disease (influenza)	10
<i>Orthomyxoviridae</i>	<i>Quarantivirus</i>	<i>Quarantivirus quarantense</i>	Quarant virus (QRFV)	Renamed; previous name Quarant quarantivirus (species)	A tickborne virus that causes a mild febrile disease	11
<i>Orthomyxoviridae</i>	<i>Thogotovirus</i>	<i>Thogotovirus dhorienae</i>	Dhor virus (DHOV)	Renamed; previous name Dhor thogotovirus (species)	A tickborne virus that causes a febrile disease with neurological effects	14
<i>Orthomyxoviridae</i>	<i>Thogotovirus</i>	<i>Thogotovirus thogotoense</i>	Thogoto virus (THOV)	Renamed; previous name Thogoto thogotovirus (species)	A tickborne virus that causes a febrile disease with neurological effects	14
<i>Picobirnaviridae</i>	<i>Orthopicobirnavirus</i>	<i>Orthopicobirnavirus hominis</i>	Human picobirnavirus (HPBV)	Renamed; previous name Human picobirnavirus (species), Picobirnavirus (genus)	Possibly respiratory and gastrointestinal tract diseases	16
<i>Polyomaviridae</i>	<i>Alpha-, Beta-, and Deltapolyomavirus</i>	3 human polyomavirus species have been assigned to the new genus Alphapolyomavirus; 4 human polyomavirus species have been assigned to the new genus Betapolyomavirus; 4 human polyomavirus species have been assigned to the new genus Deltapolyomavirus	Virus names have not changed	Renamed; several previous species names	The 11 human polyomaviruses have been assigned to 3 new genera	17



Viral nomenclature changes

<i>Rhabdoviridae</i>	<i>Ledantivirus</i>	<i>Ledantivirus ledantec</i>	LeDantec virus (LDV)	Renamed; previous name Le Dantec ledantivirus (species)	Possible association with disease in patients with fever and hepatosplenomegaly or neurological manifestations	18
<i>Rhabdoviridae</i>	<i>Lyssavirus</i>	14 new species designations	Virus names have not changed	Renamed; several previous species names	Species of the genus <i>Lyssavirus</i> , which includes rabies virus (RABV), have been renamed using the convention <i>Lyssavirus</i> + specific virus. For example, the species name of RABV is <i>Lyssavirus rabies</i> . Many of these viruses cause severe or fatal neurological disease in humans	19
<i>Rhabdoviridae</i>	<i>Tibrovirus</i>	<i>Tibrovirus congo</i>	Bas-Congo virus (BASV)	Renamed; previous name Bas-Congo tibrovirus (species)	Possibly causes hemorrhagic fever	20
<i>Rhabdoviridae</i>	<i>Vesiculovirus</i>	<i>Vesiculovirus chandipura</i>	Chandipura virus (CHPV)	Renamed; previous name Chandipura vesiculovirus (species)	Causes a short-duration influenza-like illness in humans	21
<i>Rhabdoviridae</i>	<i>Vesiculovirus</i>	<i>Vesiculovirus indiana</i>	Vesicular stomatitis Indiana virus (VSIV)	Renamed; previous name Indiana vesiculovirus (species)	Causes a short-duration influenza-like illness in humans	22
<i>Rhabdoviridae</i>	<i>Vesiculovirus</i>	<i>Vesiculovirus isfahan</i>	Isfahan virus (ISFV)	Renamed; previous name Isfahan vesiculovirus (species)	Causes a short-duration influenza-like illness in humans	23
<i>Rhabdoviridae</i>	<i>Vesiculovirus</i>	<i>Vesiculovirus new jersey</i>	Vesicular stomatitis New Jersey virus (VSNJV)	Renamed; previous name New Jersey vesiculovirus (species)	Causes a short-duration influenza-like illness in humans	22
<i>Rhabdoviridae</i>	<i>Vesiculovirus</i>	<i>Vesiculovirus piry</i>	Piry virus (PIRYV)	Renamed; previous name Piry vesiculovirus (species)	Causes a short-duration influenza-like illness in humans	24

^aAdapted from the International Committee on Taxonomy of Viruses 2021 taxonomy release (<https://ictv.global/taxonomy>; last accessed 25 August 2022).



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