Supplementary material Table S2. Excluded articles and reasons for exclusion(n = 202).

|  |  |  |
| --- | --- | --- |
| Reference | Author,Year | Reason for exclusion |
| ([1](#_ENREF_1)) | Ameis et al 1995 | 1 |
| ([2](#_ENREF_2" \o "Burton, 2015 #37)) | Burton et al 2015 | 1 |
| ([3](#_ENREF_3" \o "Burton, 2017 #38)) | Burton et al 2017 | 1 |
| ([4](#_ENREF_4" \o "Canbay, 2018 #42)) | Canbay et al 2018 | 1 |
| ([5](#_ENREF_5" \o "Castro Narro, 2019 #7046)) | Castro Narro et al 2019 | 1 |
| ([6](#_ENREF_6" \o "Chora, 2017 #50)) | Chora et al 2017 | 1 |
| ([7](#_ENREF_7" \o "Ivashkin, 2017 #115)) | Ivashkin et al 2017 | 1 |
| ([8](#_ENREF_8" \o "Kale, 1995 #121)) | Kale et al 1995 | 1 |
| ([9](#_ENREF_9" \o "Lohse, 2000 #164)) | Lohse et al 2000 | 1 |
| ([10](#_ENREF_10" \o "Muntoni, 1995 #190)) | Muntoni et al 1995 | 1 |
| ([11](#_ENREF_11" \o "Rashu,  #670)) | Rashu et al 2019 | 1 |
| ([12](#_ENREF_12" \o "Sjouke, 2015 #244)) | Sjouke et al 2015 | 1 |
| ([13](#_ENREF_13" \o "Lageron, 1988 #148)) | Lageron et al 1988 | 2 |
| ([14](#_ENREF_14" \o "Young, 1979 #288)) | Young et al 1979 | 2 |
| ([15](#_ENREF_15" \o "Browne, 2003 #35)) | Browne et al 2003 | 2 |
| ([16](#_ENREF_16" \o "Buitrago Mata, 2003 #36)) | Buitrago et al | 2 |
| ([17](#_ENREF_17" \o "Carter, 1974 #44)) | Carter et al 1974 | 2 |
| ([18](#_ENREF_18" \o "Chowdhury, 2009 #51)) | Chowdhury et al 2009 | 2 |
| ([19](#_ENREF_19" \o "Crocker, 1965 #7054)) | Crocker et al 1965 | 2 |
| ([20](#_ENREF_20" \o "Gerner, 2018 #89) | Gerner et al 2018 | 2 |
| ([21](#_ENREF_21" \o "Konno, 1966 #134)) | Konno et al 1966 | 2 |
| ([22](#_ENREF_22" \o "Lake, 1970 #150)) | Lake et al 1970 | 2 |
| ([23](#_ENREF_23" \o "Lowden, 1970 #169)) | Lowden et al 1970 | 2 |
| ([24](#_ENREF_24" \o "Mallikarjuna Swamy, 1997 #173)) | Mallikarjuma Swamy 1997 | 2 |
| ([25](#_ENREF_25" \o "Mello, 1982 #183)) | Mello et al 1982 | 2 |
| ([26](#_ENREF_26" \o "Panchagnula, 2000 #206)) | Panchagnula et al 2000 | 2 |
| ([27](#_ENREF_27" \o "Peña Alonso, 1994 #210)) | Pena-Alonso et al 1994 | 2 |
| ([28](#_ENREF_28" \o "Petropoulou, 2017 #214)) | Petropoulo et al 2017 | 2 |
| ([29](#_ENREF_29" \o "Ramón, 2000 #229)) | Ramon et al 2000 | 2 |
|  (30) | Sen et al 2015 | 2 |
| ([31](#_ENREF_31" \o "Shenoy, 2014 #241)) | Shenoy et al 2014 | 2 |
| ([32](#_ENREF_32" \o "Sty, 1978 #251)) | Sty et al 1978 | 2 |
| ([33](#_ENREF_33" \o "Aquino, 2020 #606)) | Aquino et al 2020 | 3 |
| ([34](#_ENREF_34" \o "White, 2015 #280)) | White et al 2015 | 3 |
| ([35](#_ENREF_35" \o "Aslan, 2016 #12)) | Aslan et al 2016 | 3 |
| ([36](#_ENREF_36" \o "Berdon, 1969 #21)) | Berdon et al 1969 | 3 |
| ([37](#_ENREF_37" \o "Bernstein, 2017 #25)) | Bernstein et al 2017 | 3 |
| ([38](#_ENREF_38" \o "Bernstein, 2020 #612)) | Bernstein et al 2020 | 3 |
| ([39](#_ENREF_39" \o "Boldrini, 2000 #28)) | Boldrini et al 2000 | 3 |
| ([40](#_ENREF_40" \o "Borges, 2020 #613)) | Borges et al 2020 | 3 |
| ([41](#_ENREF_41" \o "Breen, 2016 #33)) | Breen et al 2016 | 3 |
| ([42](#_ENREF_42" \o "Burton,  #616)) | Burton et al 2019 | 3 |
| ([43](#_ENREF_43" \o "Burton,  #617)) | Burton et al 2019 | 3 |
| ([44](#_ENREF_44" \o "Kulhas Celik, 2019 #649)) | Kulhas Celik et al 2019 | 3 |
| ([45](#_ENREF_45" \o "Coates, 1978 #52)) | Coates et al 1978 | 3 |
| ([46](#_ENREF_46" \o "Deegan, 2014 #61)) | Deegan et al 2014 | 3 |
| ([47](#_ENREF_47" \o "Drogari, 2013 #64)) | Drogari et al 2013 | 3 |
| ([48](#_ENREF_48" \o "Drogari, 2010 #65)) | Drogari et al 2010 | 3 |
| ([49](#_ENREF_49" \o "Ghosh, 2016 #90)) | Ghosh et al 2016 | 3 |
| ([50](#_ENREF_50" \o "Ghosh, 2017 #91)) | Ghosh et al 2017 | 3 |
| ([51](#_ENREF_51" \o "Glueck, 1992 #92)) | Glueck et al 1992 | 3 |
| ([52](#_ENREF_52" \o "Goncalves, 2016 #94)) | Gonçalves A et al 2016 | 3 |
| ([53](#_ENREF_53" \o "Gramatges, 2009 #97)) | Gramatgets et al 2009 | 3 |
| ([54](#_ENREF_54" \o "Grant, 2020 #638)) | Grant et al 2020 | 3 |
| ([55](#_ENREF_55" \o "Kalkan Ucar, 2010 #122)) | Kalkan et al 2010 | 3 |
| ([56](#_ENREF_56" \o "Lin, 1976 #160)) | Lin et al 1976 | 3 |
| ([57](#_ENREF_57" \o "Long, 2020 #656)) | Long et al 2020 | 3 |
| ([58](#_ENREF_58" \o "Maslen, 1995 #177)) | Maslen et al 1995 | 3 |
| ([59](#_ENREF_59" \o "Pagani, 1996 #203)) | Pagani et al 1996 | 3 |
| ([60](#_ENREF_60" \o "Ramadza, 2015 #228)) | Ramadza et al 2015 | 3 |
| ([61](#_ENREF_61" \o "Tummolo, 2016 #265)) | Tummolo et al 2016 | 3 |
| ([62](#_ENREF_62" \o "Abel, 2014 #1)) | Abel et al 2014 | 4 |
| ([63](#_ENREF_63" \o "Aldeen, 1999 #6)) | Aldeen et al 1999 | 4 |
| ([64](#_ENREF_64" \o "Anderson, 2010 #9)) | Anderson et al 2010 | 4 |
| ([65](#_ENREF_65" \o "Benlian, 2014 #20)) | Benlian et al 2014 | 4 |
| ([66](#_ENREF_66" \o "Besley, 1984 #26)) | Besley et al 1984 | 4 |
| ([67](#_ENREF_67" \o "Byrd Iii, 1979 #39)) | Byrd et al 1979 | 4 |
| ([68](#_ENREF_68" \o "Cebolla, 2016 #48)) | Cebolla et al 2016 | 4 |
| ([69](#_ENREF_69" \o "Erbe, 2014 #74)) | Erbe et al 2014 | 4 |
| ([70](#_ENREF_70" \o "Eto, 1970 #75)) | Eto et al 1970 | 4 |
| ([71](#_ENREF_71" \o "Fang, 2017 #77)) | Fang et al 2017 | 4 |
| ([72](#_ENREF_72" \o "Fulcher, 1998 #85)) | Fulcher et al 1998 | 4 |
| (73) | Fumic et al 2010 | 4 |
| ([74](#_ENREF_74" \o "Gargus, 2012 #87)) | Gargus et al 2012 | 4 |
| ([75](#_ENREF_75" \o "Grabowski, 2013 #96)) | Grabowski 2013 | 4 |
| ([76](#_ENREF_76)) | Harrisson et al 1997 | 4 |
| ([77](#_ENREF_77" \o "Hart, 2016 #104)) | Hart et al 2016 | 4 |
| ([78](#_ENREF_78" \o "Heiner-Fokkema, 2016 #106)) | Heiner-Fokkema et al 2016 | 4 |
| ([79](#_ENREF_79" \o "Hendriksz, 2012 #107)) | Hendrinksz et al 2012 | 4 |
| ([80](#_ENREF_80" \o "Jones, 2014 #116)) | Jones et al 2014 | 4 |
| ([81](#_ENREF_81" \o "Kamalian, 1973 #123)) | Kamalian et al 1973 | 4 |
| ([82](#_ENREF_82" \o "Klaudel-Dreszler, 2016 #130)) | Klaudel-Dreszler et al 2016 | 4 |
| ([83](#_ENREF_83" \o "Kodali, 2016 #132)) | Kodali et al 2016 | 4 |
| ([84](#_ENREF_84" \o "Leone, 1991 #157)) | Leone et al 1991 | 4 |
| ([85](#_ENREF_85" \o "Leone, 1995 #158)) | Leone et al 1995 | 4 |
| ([86](#_ENREF_86" \o "Lourenco, 2013 #167)) | Lourenco et al 2013 | 4 |
| ([87](#_ENREF_87" \o "Lourenco, 2013 #168)) | Lourenco et al 2013 | 4 |
| ([88](#_ENREF_88" \o "Marshall, 1969 #175)) | Marshall et al 1969 | 4 |
| ([89](#_ENREF_89" \o "Matthews, 2004 #178)) | Matthews et al 2004 | 4 |
| ([90](#_ENREF_90" \o "O'Leary, 2013 #196)) | O’Leary et al 2013 | 4 |
| ([91](#_ENREF_91" \o "Ozmen, 1992 #199)) | Ozmen et al 1992 | 4 |
| ([92](#_ENREF_92" \o "Patel, 2018 #209)) | Patel et al 2018 | 4 |
| ([93](#_ENREF_93" \o "Perezpeña Diazconti, 2016 #212)) | Perezpena et al 2016 | 4 |
| ([94](#_ENREF_94" \o "Queloz, 1972 #223)) | Queloz et al 1972 | 4 |
| ([95](#_ENREF_95" \o "Raafat, 1973 #226)) | Raafat et al 1973 | 4 |
| ([96](#_ENREF_96" \o "Rennie, 2018 #231)) | Rennie et al 2018 | 4 |
| ([97](#_ENREF_97" \o "Slae, 2018 #245)) | Slae et al 2018 | 4 |
| ([98](#_ENREF_98" \o "Strokova, 2017 #250)) | Strokova et al 2017 | 4 |
| ([99](#_ENREF_99)) | Uno et al 1973 | 4 |
| ([100](#_ENREF_100" \o "Van Spronsen, 2016 #272)) | Van Spronsen et al | 4 |
| ([101](#_ENREF_101" \o "Watanuki, 1967 #277)) | Watanuki et al 1966 | 4 |
| ([102](#_ENREF_102" \o "Wong, 2012 #284)) | Wong et al 2012 | 4 |
| ([103](#_ENREF_103" \o "Yahyaoui, 2017 #286)) | Yahyahoui et al 2017 | 4 |
| ([104](#_ENREF_104" \o "Bernstein, 2018 #24)) | Bernstein et al 2018 | 5 |
| ([105](#_ENREF_105" \o "Eminoglu, 2016 #73)) | Eminoglu et al 2016 | 5 |
| ([106](#_ENREF_106" \o "Eto, 1978 #76)) | Eto et al 1978 | 5 |
| ([107](#_ENREF_107" \o "Guardamagna, 2014 #98)) | Guardamagna et al 2014 | 5 |
| ([108](#_ENREF_108" \o "Huang, 2012 #113)) | Huang et al 2012 | 5 |
| ([109](#_ENREF_109" \o "Konno, 1993 #133)) | Konno 1993 | 5 |
| ([110](#_ENREF_110" \o "Lavrova, 2017 #151)) | Lavrova et al 2017 | 5 |
| ([111](#_ENREF_111" \o "Ma, 2013 #170)) | Ma et al 2013 | 5 |
| ([112](#_ENREF_112)) | Quinn et al 2014 | 5 |
| ([113](#_ENREF_113" \o "Surkov, 2020 #680)) | Surkov et al 2020 | 5 |
| ([114](#_ENREF_114" \o "Tanaka, 1998 #255)) | Tanaka 1998 | 5 |
| ([115](#_ENREF_115" \o "Tanaka, 2006 #256)) | Tanaka 2006 | 5 |
| ([116](#_ENREF_116" \o "Lageron, 1978 #146)) | Lageron et al 1978 | 6 |
| ([117](#_ENREF_117" \o "Amraoui, 2015 #8)) | Amraoui et al 2015 | 6 |
| ([118](#_ENREF_118" \o "Aubert-Tulkens, 1980 #13)) | Aubert-Tulkens 1980 | 6 |
| ([119](#_ENREF_119" \o "Bambirra, 1982 #14)) | Bambirra et all 1982 | 6 |
| ([120](#_ENREF_120" \o "Bernstein, 2013 #22)) | Bernstein et al 2013 | 6 |
| ([121](#_ENREF_121" \o "Bona, 1989 #30)) | Bona et al 1989 | 6 |
| ([122](#_ENREF_122" \o "Bretagne, 1981 #34)) | Bregtane et al 1981 | 6 |
| ([123](#_ENREF_123" \o "Caseiro, 2016 #45)) | Caseiro et al 2016 | 6 |
| ([124](#_ENREF_124" \o "Castro, 1999 #46)) | Castro et al 1999 | 6 |
| ([125](#_ENREF_125" \o "Coelho, 1987 #53)) | Coelho et al 1987 | 6 |
| ([126](#_ENREF_126" \o "Contreras, 1974 #54)) | Contreras et a 1974 | 6 |
| ([127](#_ENREF_127" \o "Elleder, 1999 #69)) | Elleder et al 1999 | 6 |
| ([128](#_ENREF_128" \o "Elsayed, 2014 #72)) | Elsayed et al 2014 | 6 |
| ([129](#_ENREF_129" \o "Feillet, 2009 #79)) | Feillet et al 2009 | 6 |
| ([130](#_ENREF_130" \o "Fernandez-Aragon, 2004 #80)) | Fernandez-Aragon et al 2004 | 6 |
| ([131](#_ENREF_131" \o "Foster, 1987 #82)) | Foster et al 1987 | 6 |
| ([132](#_ENREF_132" \o "Gautier, 1978 #88)) | Gautier et al 1978 | 6 |
| ([133](#_ENREF_133" \o "Guazzi, 1968 #99)) | Guazzi et al 1968 | 6 |
| ([134](#_ENREF_134" \o "Guazzi, 1968 #100)) | Guazzi et al 1968 | 6 |
| ([135](#_ENREF_135" \o "Hanak, 1984 #102)) | Hanak et al 1984 | 6 |
| ([136](#_ENREF_136" \o "Haznedar, 2018 #105)) | Haznedar et al 2018 | 6 |
| ([137](#_ENREF_137" \o "Hicks, 2014 #108)) | Hicks et al 2014 | 6 |
| ([138](#_ENREF_138" \o "Higuchi, 1997 #109)) | Higuchi et al 1997 | 6 |
| ([139](#_ENREF_139" \o "Hill, 1983 #110)) | Hill et al. 1983 | 6 |
| ([140](#_ENREF_140" \o "Ho, 1978 #112)) | Ho et al 1978 | 6 |
| ([141](#_ENREF_141" \o "Justus, 1988 #119)) | Justus et al 1988 | 6 |
| ([142](#_ENREF_142" \o "Kahana, 1968 #120)) | Kahana et al 1988 | 6 |
| ([143](#_ENREF_143" \o "Keller, 1977 #126)) | Keller et al 1977 | 6 |
| ([144](#_ENREF_144" \o "Krebs, 2010 #137)) | Krebs et al 2010 | 6 |
| ([145)](#_ENREF_145" \o "Kunnert, 1977 #142) | Kunnert 1977 | 6 |
| ([146](#_ENREF_146)) | Kunnert et al 1987 | 6 |
| ([147](#_ENREF_147" \o "Kuntz, 1981 #144)) | Kuntz et al 1981 | 6 |
| ([148](#_ENREF_148" \o "Lageron, 1985 #147)) | Lageron et al 1985 | 6 |
| ([149](#_ENREF_149" \o "Lajo, 1974 #149)) | Lajo et al 1974 | 6 |
| ([150](#_ENREF_150" \o "Leclerc, 1971 #154)) | Leclerc et al 1971 | 6 |
| ([151](#_ENREF_151" \o "Loffredo, 1975 #163)) | Loffredo et al 1975 | 6 |
| ([152](#_ENREF_152" \o "Lough, 1970 #166)) | Lough et a 1970 | 6 |
| ([153](#_ENREF_153" \o "Marosvari, 1985 #174)) | Marosvari 1985 | 6 |
| ([154](#_ENREF_154" \o "Martinez De Compañón, 2004 #176)) | Martinez de Companon et al 2004 | 6 |
| ([155](#_ENREF_155" \o "Mazurová, 2014 #180)) | Mazurova et al 2014 | 6 |
| ([156](#_ENREF_156" \o "McKiernan, 2012 #182)) | McKierna et al 2012 | 6 |
| ([157](#_ENREF_157" \o "Miller, 1982 #186)) | Miller et al 1982 | 6 |
| ([158](#_ENREF_158" \o "Muñoz Bartolo, 2007 #189)) | Munoz Bartolo et al 2007 | 6 |
| ([159](#_ENREF_159" \o "Murakami, 2016 #191)) | Muramaki J. et al 2016 | 6 |
| ([160](#_ENREF_160" \o "Nardi, 1971 #192)) | Nardi et al 1971 | 6 |
| ([161](#_ENREF_161" \o "Neustein, 1972 #195)) | Neustein et al 1973 | 6 |
| ([162](#_ENREF_162" \o "Ozoran, 1978 #200)) | Ozoran et al 1978 | 6 |
| ([163](#_ENREF_163" \o "Ozsoylu, 1992 #201)) | Ozsoylu 1992 | 6 |
| ([164](#_ENREF_164" \o "Ozsoylu, 1977 #202)) | Ozsoylu et al 1977 | 6 |
| ([165](#_ENREF_165" \o "Parada Yáñez, 1996 #207)) | Parada Yanez et al 1996 | 6 |
| ([166](#_ENREF_166" \o "Pastor Bevia, 1987 #208)) | Pastor Bevia et al 1987 | 6 |
| ([167](#_ENREF_167" \o "Perez Rodriguez-Cuesta, 1990 #211)) | Perez Rodrigues-Cuesta 1990 | 6 |
| ([168](#_ENREF_168" \o "Permanetter, 1979 #213)) | Permanetter et al 1979 | 6 |
| ([169](#_ENREF_169" \o "Pisciotta, 2017 #217)) | Pisciotta et al 2017 | 6 |
| ([170](#_ENREF_170" \o "Pohlandt, 1988 #220)) | Pohlandt et al 1988 | 6 |
| ([171](#_ENREF_171" \o "Pot, 2008 #222)) | Pot et al 2008 | 6 |
| ([172](#_ENREF_172" \o "Quirici Neto, 1985 #225)) | Quirici et al 1985 | 6 |
| ([173](#_ENREF_173" \o "Rassoul, 2001 #230)) | Rassoul et al 2001 | 6 |
| ([174](#_ENREF_174" \o "Ryzko, 1993 #235)) | Ryzko et al 1993 | 6 |
| ([175](#_ENREF_175" \o "Smolka, 2007 #246)) | Smolka 2007 | 6 |
| ([176](#_ENREF_176" \o "Storm, 1990 #249)) | Storm et al 1990 | 6 |
| ([177](#_ENREF_177" \o "Sundaravalli, 1986 #252)) | Sundaravalli et al 1986 | 6 |
| ([178](#_ENREF_178" \o "Tashiro, 1989 #258)) | Tashiro et al 1989 | 6 |
| ([179](#_ENREF_179" \o "Thavarungkul, 1995 #260)) | Thavarungkul et al 1985 | 6 |
| ([180](#_ENREF_180" \o "Tonissen, 1983 #263)) | Tonissen et al 1983 | 6 |
| ([181](#_ENREF_181" \o "Tylki-Szymanska, 1987 #266)) | Tylki-Szymanska, A et al 1987 | 6 |
| ([182](#_ENREF_182)) | Valerdiz Casasola et al 1997 | 6 |
| ([183](#_ENREF_183)) | Vargas Torcal et al | 6 |
| ([184](#_ENREF_184)) | Vij et al 2018 | 6 |
| ([185](#_ENREF_185)) | Wallis et al 1971 | 6 |
| ([186](#_ENREF_186)) | Weiler et al 2009 | 6 |
| ([187](#_ENREF_187)) | Wolf et al 1974 | 6 |
| ([188](#_ENREF_188)) | Wolman 1992 | 6 |
| ([189](#_ENREF_189)) | Wolman 1993 | 6 |
| ([190](#_ENREF_190)) | Yadav 1995 | 6 |
| ([191](#_ENREF_191)) | Zlatkovic et al 2001 | 6 |
| ([192](#_ENREF_192)) | Zubov et al 1989 | 6 |
| ([193](#_ENREF_193)) | Basu et al 2002 | 7 |
| ([194](#_ENREF_194)) | Leavitt et al 2007 | 7 |
| ([195](#_ENREF_195)) | Philippart et al 1982 | 7 |
| ([196](#_ENREF_196)) | Weiskirchen 2017 | 7 |
| ([197](#_ENREF_197)) | Al-Essa et al 1999 | 8 |
| ([198](#_ENREF_198)) | Arteburn et al 1991 | 8 |
| ([199](#_ENREF_199)) | Jones et al 2016 | 8 |
| ([200](#_ENREF_200)) | Kucukcongar Yava et al 2015 | 8 |
| (201) | Linpinski et al 2018 | 8 |
| ([202](#_ENREF_202)) | Lyons et al 2020 | 8 |

Legend: 1) Studies with adults (over 18 years old) ; 2) Studies not performing laboratorial exam to confirm the diagnosis; 3) Studies in which patients features were not evaluated; 4) Secondary studies (articles reviews, letter to the editor, books and book chapters); 5) Studies not published in Latin Roman Alphabet; 6) Full text not available 7) Studies without patient with lysosomal acid lipase deficiency 8) Studies with previously published case.

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