

# THESAURUS DES INDICATIONS ANTIFONGIQUES HORS AMM DES HOSPICES CIVILS DE LYON

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Validation : Groupe Antifongiques des Hospices Civils de Lyon,

Commission du Médicament et des Dispositifs Médico-Stériles, Comité Anti-Infectieux

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Hospices Civils de Lyon

## Amphotéricine b liposomale

Indication Hors RBU	Critères cliniques motivant la prescription	Bibliographie
<p>« Traitement pré-emptif d'une infection fongique invasive chez un patient à risque, asymptomatique ou fébrile, avec un biomarqueur positif, notamment dans un contexte de neutropénie prolongée (&gt; 10 jours) ou de transplantation pulmonaire »</p>		<p><b>Neutropénie prolongée:</b>                      - Tan BH, Low JG, Chlebicka NL, Kurup A, Cheah FK, Lin RT, Goh YT, Wong GC. Galactomannan-guided preemptive vs. empirical antifungals in the persistently febrile neutropenic patient: a prospective randomized study. <i>Int J Infect Dis.</i> 2011 May;15(5):e350-6.                      - Cordonnier C, Pautas C, Maury S, Vekhoff A, Farhat H, Suarez F, Dhédin N, Isnard F, Ades L, Kuhnowski F, Foulet F, Kuentz M, Maison P, Bretagne S, Schwarzing M. Empirical versus preemptive antifungal therapy for high-risk, febrile, neutropenic patients: a randomized, controlled trial. <i>Clin Infect Dis.</i> 2009 Apr 15;48(8):1042-51.                      - Maertens J, Theunissen K, Verhoef G, Verschakelen J, Lagrou K, Verbeken E, Wilmer A, Verhaegen J, Boogaerts M, Van Eldere J. Galactomannan and computed tomography-based preemptive antifungal therapy in neutropenic patients at high risk for invasive fungal infection: a prospective feasibility study. <i>Clin Infect Dis.</i> 2005 Nov 1;41(9):1242-50.</p> <p><b>Transplantation pulmonaire:</b>                      -Patterson TF, Thompson GR 3rd, Denning DW, Fishman JA, Hadley S, Herbrecht R, Kontoyiannis DP, Marr KA, Morrison VA, Nguyen MH, Segal BH, Steinbach WJ, Stevens DA, Walsh TJ, Wingard JR, Young JA, Bennett JE. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. <i>Clin Infect Dis.</i> 2016 Aug 15;63(4):e1-e60.</p>
<p>« Traitement empirique d'une infection fongique invasive chez un patient septique à risque non neutropénique, sans autre documentation microbiologique, notamment dans les services de réanimation ou sur avis infectieux »</p>		<p><b>Candida:</b>                      - Pappas PG, Kauffman CA, Andes DR, Clancy CJ, Marr KA, Ostrosky-Zeichner L, Reboli AC, Schuster MG, Vazquez JA, Walsh TJ, Zaoutis TE, Sobel JD. Clinical Practice Guideline for the Management of Candidiasis: 2016 Update by the Infectious Diseases Society of America. <i>Clin Infect Dis.</i> 2016 Feb 15;62(4):e1-50.                      - <b>Candidose intra-abdominale :</b> Bassetti M, et al. A research agenda on the management of intra-abdominal candidiasis: results from a consensus of multinational experts. <i>Intensive Care Med.</i> 2013 Dec;39(12):2092-106.</p> <p><b>Aspergillus:</b>                      - Patterson TF, Thompson GR 3rd, Denning DW, Fishman JA, Hadley S, et al. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. <i>Clin Infect Dis.</i> 2016 Aug 15;63(4):e1-e60.</p> <p><b>Mucorales:</b>                      Cornely OA, et al; Mucormycosis ECMM MSG Global Guideline Writing Group. Global guideline for the diagnosis and management of mucormycosis: an initiative of the European Confederation of Medical Mycology in cooperation with the Mycoses Study Group Education and Research Consortium. <i>Lancet Infect Dis.</i> 2019 Dec;19(12):e405-e421.</p>



## Amphotéricine b liposomale (suite)

Indication Hors RBU	Critères cliniques motivant la prescription	Bibliographie
<p>« Traitement d'une IFI due à un champignon filamenteux ou à une levure, rare ou résistant ou sur matériel, compris dans le spectre d'action de la molécule »</p>		<p><b>Levures rares:</b> Arendrup MC, Boekhout T, Akova M, Meis JF, Cornely OA, Lortholary O; European Society of Clinical Microbiology and Infectious Diseases Fungal Infection Study Group.; European Confederation of Medical Mycology. ESCMID and ECMM joint clinical guidelines for the diagnosis and management of rare invasive yeast infections. Clin Microbiol Infect. 2014 Apr;20 Suppl 3:76-98.</p> <p><b>Phaeohyphomycoses:</b> Chowdhary A, Meis JF, Guarro J, de Hoog GS, Kathuria S, Arendrup MC, Arikian-Akdagli S, Akova M, Boekhout T, Caira M, Guinea J, Chakrabarti A, Dannaoui E, van Diepeningen A, Freiburger T, Groll AH, Hope WW, Johnson E, Lackner M, Lagrou K, Lanternier F, Lass-Flörl C, Lortholary O, Meletiadis J, Muñoz P, Pagano L, Petrikos G, Richardson MD, Roilides E, Skiada A, Tortorano AM, Ullmann AJ, Verweij PE, Cornely OA, Cuenca-Estrella M; European Society of Clinical Microbiology and Infectious Diseases Fungal Infection Study Group.; European Confederation of Medical Mycology. ESCMID and ECMM joint clinical guidelines for the diagnosis and management of systemic phaeohyphomycosis: diseases caused by black fungi. Clin Microbiol Infect. 2014 Apr;20 Suppl 3:47-75.</p> <p><b>Rare moulds:</b> Hoenigl M, Salmanton-García J, Walsh TJ, Nucci M, Neoh CF, Jenks JD, Lackner M, Sprute R, Al-Hatmi AMS, Bassetti M, Carlesse F, Freiburger T, Koehler P, Lehrnbecher T, Kumar A, Prattes J, Richardson M, Revankar S, Slavin MA, Stemler J, Spiess B, Taj-Aldeen SJ, Warris A, Woo PCY, Young JH, Albus K, Arenz D, Arsic-Arsenijevic V, Bouchara JP, Chinniah TR, Chowdhary A, de Hoog GS, Dimopoulos G, Duarte RF, Hamal P, Meis JF, Mfinanga S, Queiroz-Telles F, Patterson TF, Rahav G, Rogers TR, Rotstein C, Wahyuningsih R, Seidel D, Cornely OA. Global guideline for the diagnosis and management of rare mould infections: an initiative of the European Confederation of Medical Mycology in cooperation with the International Society for Human and Animal Mycology and the American Society for Microbiology. Lancet Infect Dis. 2021 Aug;21(8):e246-e257.</p> <p><b>Mucormycoses:</b> Cornely OA, Alastruey-Izquierdo A, Arenz D, Chen SCA, Dannaoui E, Hochhegger B, et al; Mucormycosis ECMM MSG Global Guideline Writing Group. Global guideline for the diagnosis and management of mucormycosis: an initiative of the European Confederation of Medical Mycology in cooperation with the Mycoses Study Group Education and Research Consortium. Lancet Infect Dis. 2019 Dec;19(12):e405-e421.</p> <p><b>Endophtalmie:</b> Bae JH, Lee SC. Intravitreal liposomal amphotericin B for treatment of endogenous candida endophthalmitis. Jpn J Ophthalmol. 2015 Sep;59(5):346-52.</p>



## Caspofungine

Indication Hors RBU	Critères cliniques motivant la prescription	Bibliographie
<p><b>« Prophylaxie de l'aspergillose pulmonaire invasive chez les patients greffés du poumon ou au cas par cas chez des patients à risque**, notamment dans un contexte de travaux »</b></p>	<p>** There are other high-risk patients, such as those with refractory leukemia, those with solid tumors, other SOT recipients, those receiving corticosteroid therapy, those with liver failure, those with COPD with progressive infiltrates despite antibiotics, and critically ill patients in whom empiric therapy may be warranted on a case-by-case basis (IDSA, CID 2016)</p>	<p><b>Neutropénie prolongée et transplantation non pulmonaire :</b> Patterson TF, Thompson GR 3rd, Denning DW, Fishman JA, Hadley S, Herbrecht R, Kontoyiannis DP, Marr KA, Morrison VA, Nguyen MH, Segal BH, Steinbach WJ, Stevens DA, Walsh TJ, Wingard JR, Young JA, Bennett JE. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Aug 15;63(4):e1-e60.</p> <p><b>Transplantation hépatique :</b></p> <ul style="list-style-type: none"> <li>- Husain S, Camargo JF. Invasive Aspergillosis in solid-organ transplant recipients: Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice. Clin Transplant. 2019 Mar 21:e13544.</li> <li>- Fortún J, Muriel A, Martín-Dávila P, Montejo M, Len O, Torre-Cisneros J, Carratalá J, Muñoz P, Fariñas C, Moreno A, Fresco G, Goikoetxea J, Gavalda J, Pozo JC, Bodro M, Vena A, Casafont F, Cervera C, Silva JT, Aguado JM; Grupo de Estudio de Infección en Pacientes Trasplantados-Grupo de Estudio de Micología Médica (Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica), and Red Española de Investigación en Patología Infecciosa. Caspofungin versus fluconazole as prophylaxis of invasive fungal infection in high-risk liver transplantation recipients: A propensity score analysis. Liver Transpl. 2016 Apr;22(4):427-35.</li> </ul>
<p><b>« Traitement pré-emptif d'une infection fongique invasive chez un patient à risque, asymptomatique ou fébrile, avec un biomarqueur positif, notamment dans un contexte de neutropénie prolongée (&gt; 10 jours) ou de transplantation pulmonaire »</b></p>		<p><b>Neutropénie prolongée:</b></p> <ul style="list-style-type: none"> <li>- Cordonnier C, Pautas C, Maury S, Vekhoff A, Farhat H, Suarez F, Dhédin N, Isnard F, Ades L, Kuhnowski F, Foulet F, Kuentz M, Maison P, Bretagne S, Schwarzingler M. Empirical versus preemptive antifungal therapy for high-risk, febrile, neutropenic patients: a randomized, controlled trial. Clin Infect Dis. 2009 Apr 15;48(8):1042-51.</li> <li>- Tan BH, Low JG, Chlebicka NL, Kurup A, Cheah FK, Lin RT, Goh YT, Wong GC. Galactomannan-guided preemptive vs. empirical antifungals in the persistently febrile neutropenic patient: a prospective randomized study. Int J Infect Dis. 2011 May;15(5):e350-6.</li> <li>- Maertens J, Theunissen K, Verhoef G, Verschakelen J, Lagrou K, Verbeken E, Wilmer A, Verhaegen J, Boogaerts M, Van Eldere J. Galactomannan and computed tomography-based preemptive antifungal therapy in neutropenic patients at high risk for invasive fungal infection: a prospective feasibility study. Clin Infect Dis. 2005 Nov 1;41(9):1242-50.</li> </ul> <p><b>Transplantation pulmonaire:</b></p> <ul style="list-style-type: none"> <li>-Patterson TF, Thompson GR 3rd, Denning DW, Fishman JA, Hadley S, Herbrecht R, Kontoyiannis DP, Marr KA, Morrison VA, Nguyen MH, Segal BH, Steinbach WJ, Stevens DA, Walsh TJ, Wingard JR, Young JA, Bennett JE. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Aug 15;63(4):e1-e60.</li> </ul>



## Caspofungine (suite)

Indication Hors RBU	Critères cliniques motivant la prescription	Bibliographie
<p>« Traitement empirique d'une infection fongique invasive chez un patient septique à risque non neutropénique, sans autre documentation microbiologique, notamment dans les services de réanimation ou sur avis infectieux »</p>		<p><b>Candida:</b> - Aslam S, Rotstein C; AST Infectious Disease Community of Practice. Candida infections in solid organ transplantation: Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice. Clin Transplant. 2019 Jun 2:e13623. - Pappas PG, Kauffman CA, Andes DR, Clancy CJ, Marr KA, Ostrosky-Zeichner L, Reboli AC, Schuster MG, Vazquez JA, Walsh TJ, Zaoutis TE, Sobel JD. Clinical Practice Guideline for the Management of Candidiasis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Feb 15;62(4):e1-50. - Bassetti M, Marchetti M, Chakrabarti A, Colizza S, Garnacho-Montero J, Kett DH, Munoz P, Cristini F, Andoniadou A, Viale P, Rocca GD, Roilides E, Sganga G, Walsh TJ, Tascini C, Tumbarello M, Menichetti F, Righi E, Eckmann C, Viscoli C, Shorr AF, Leroy O, Petrikos G, De Rosa FG. A research agenda on the management of intra-abdominal candidiasis: results from a consensus of multinational experts. Intensive Care Med. 2013 Dec;39(12):2092-106. doi: 10.1007/s00134-013-3109-3.</p> <p><b>Aspergillus:</b> - Warris A, Lehrnbecher T, Roilides E, Castagnola E, Brüggemann RJM, Groll AH. ESCMID-ECMM guideline: diagnosis and management of invasive aspergillosis in neonates and children. Clin Microbiol Infect. 2019 Sep;25(9):1096-1113. - Patterson TF, Thompson GR 3rd, Denning DW, Fishman JA, Hadley S, Herbrecht R, Kontoyiannis DP, Marr KA, Morrison VA, Nguyen MH, Segal BH, Steinbach WJ, Stevens DA, Walsh TJ, Wingard JR, Young JA, Bennett JE. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Aug 15;63(4):e1-e60.</p>
<p>« Traitement d'une IFI due à un champignon filamenteux ou à une levure, rare ou résistant ou sur matériel, compris dans le spectre d'action de la molécule »</p>		<p><b>Levures rares:</b> Arendrup MC, Boekhout T, Akova M, Meis JF, Cornely OA, Lortholary O; European Society of Clinical Microbiology and Infectious Diseases Fungal Infection Study Group.; European Confederation of Medical Mycology. ESCMID and ECMM joint clinical guidelines for the diagnosis and management of rare invasive yeast infections. Clin Microbiol Infect. 2014 Apr;20 Suppl 3:76-98.</p> <p><b>Phaeohyphomycoses:</b> Chowdhary A, Meis JF, Guarro J, de Hoog GS, Kathuria S, Arendrup MC, Arikian-Akdagli S, Akova M, Boekhout T, Caira M, Guinea J, Chakrabarti A, Dannaoui E, van Diepeningen A, Freiburger T, Groll AH, Hope WW, Johnson E, Lackner M, Lagrou K, Lanternier F, Lass-Flörl C, Lortholary O, Meletiadis J, Muñoz P, Pagano L, Petrikos G, Richardson MD, Roilides E, Skiada A, Tortorano AM, Ullmann AJ, Verweij PE, Cornely OA, Cuenca-Estrella M; European Society of Clinical Microbiology and Infectious Diseases Fungal Infection Study Group.; European Confederation of Medical Mycology. ESCMID and ECMM joint clinical guidelines for the diagnosis and management of systemic phaeohyphomycosis: diseases caused by black fungi. Clin Microbiol Infect. 2014 Apr;20 Suppl 3:47-75.</p> <p><b>Rare moulds:</b> Hoenigl M, Salmanton-García J, Walsh TJ, Nucci M, Neoh CF, Jenks JD, Lackner M, Sprute R, Al-Hatmi AMS, Bassetti M, Carlesse F, Freiburger T, Koehler P, Lehrnbecher T, Kumar A, Prattes J, Richardson M, Revankar S, Slavin MA, Stemler J, Spiess B, Taj-Aldeen SJ, Warris A, Woo PCY, Young JH, Albus K, Arenz D, Arsic-Arsenijevic V, Bouchara JP, Chinniah TR, Chowdhary A, de Hoog GS, Dimopoulos G, Duarte RF, Hamal P, Meis JF, Mfinanga S, Queiroz-Telles F, Patterson TF, Rahav G, Rogers TR, Rotstein C, Wahyuningsih R, Seidel D, Cornely OA. Global guideline for the diagnosis and management of rare mould infections: an initiative of the European Confederation of Medical Mycology in cooperation with the International Society for Human and Animal Mycology and the American Society for Microbiology. Lancet Infect Dis. 2021 Aug;21(8):e246-e257.</p>



## Fluconazole

Indication Hors RBU	Critères cliniques motivant la prescription	Bibliographie
<p><b>« Prophylaxie de la candidose invasive chez un patient à risque*, notamment dans les services de réanimation ou de transplantation d'organe solide »</b></p>	<p>* Risk factors for development of invasive candidiasis include <i>Candida</i> colonization, severity of illness, exposure to broad-spectrum antibiotics, recent major surgery, particularly abdominal surgery, necrotizing pancreatitis, dialysis, parenteral nutrition, corticosteroids, and the use of CVCs (IDSA, CID 2016)</p>	<p>Aslam S, Rotstein C; AST Infectious Disease Community of Practice. Candida infections in solid organ transplantation: Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice. Clin Transplant. 2019 Jun 2:e13623.</p> <p>Pappas PG, Kauffman CA, Andes DR, Clancy CJ, Marr KA, Ostrosky-Zeichner L, Reboli AC, Schuster MG, Vazquez JA, Walsh TJ, Zaoutis TE, Sobel JD. Clinical Practice Guideline for the Management of Candidiasis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Feb 15;62(4):e1-50.</p> <p>Cornely OA, Bassetti M, Calandra T, Garbino J, Kullberg BJ, Lortholary O, Meersseman W, Akova M, Arendrup MC, Arian-Akdagli S, Bille J, Castagnola E, Cuenca-Estrella M, Donnelly JP, Groll AH, Herbrecht R, Hope WW, Jensen HE, Lass-Flörl C, Petrikos G, Richardson MD, Roilides E, Verweij PE, Viscoli C, Ullmann AJ; ESCMID Fungal Infection Study Group. ESCMID* guideline for the diagnosis and management of Candida diseases 2012: non-neutropenic adult patients. Clin Microbiol Infect. 2012 Dec;18 Suppl 7:19-37.</p>
<p><b>« Traitement pré-emptif de la candidose invasive chez un patient à risque*, asymptomatique ou fébrile, avec un biomarqueur positif, notamment dans les services de réanimation ou de transplantation d'organe solide »</b></p>	<p>* Risk factors for development of invasive candidiasis include <i>Candida</i> colonization, severity of illness, exposure to broad-spectrum antibiotics, recent major surgery, particularly abdominal surgery, necrotizing pancreatitis, dialysis, parenteral nutrition, corticosteroids, and the use of CVCs (IDSA, CID 2016)</p>	<p>Pappas PG, Kauffman CA, Andes DR, Clancy CJ, Marr KA, Ostrosky-Zeichner L, Reboli AC, Schuster MG, Vazquez JA, Walsh TJ, Zaoutis TE, Sobel JD. Clinical Practice Guideline for the Management of Candidiasis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Feb 15;62(4):e1-50.</p> <p><b>Transplantation d'organes:</b> <a href="https://www.agence-biomedecine.fr/IMG/pdf/prevention-de-la-transmission-de-bacteries-et-d-agents-fongiques-aux-receveurs-d-organes-texte-court.pdf">https://www.agence-biomedecine.fr/IMG/pdf/prevention-de-la-transmission-de-bacteries-et-d-agents-fongiques-aux-receveurs-d-organes-texte-court.pdf</a></p>
<p><b>« Traitement empirique de la candidose invasive chez un patient septique à risque*, sans autre documentation microbiologique, notamment dans les services de réanimation »</b></p>	<p>* Risk factors for development of invasive candidiasis include <i>Candida</i> colonization, severity of illness, exposure to broad-spectrum antibiotics, recent major surgery, particularly abdominal surgery, necrotizing pancreatitis, dialysis, parenteral nutrition, corticosteroids, and the use of CVCs (IDSA, CID 2016)</p>	<p>Aslam S, Rotstein C; AST Infectious Disease Community of Practice. Candida infections in solid organ transplantation: Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice. Clin Transplant. 2019 Jun 2:e13623.</p> <p>Pappas PG, Kauffman CA, Andes DR, Clancy CJ, Marr KA, Ostrosky-Zeichner L, Reboli AC, Schuster MG, Vazquez JA, Walsh TJ, Zaoutis TE, Sobel JD. Clinical Practice Guideline for the Management of Candidiasis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Feb 15;62(4):e1-50.</p> <p>- <b>Candidose intra-abdominale</b> : Bassetti M, Marchetti M, Chakrabarti A, Colizza S, Garnacho-Montero J, Kett DH, Munoz P, Cristini F, Andoniadou A, Viale P, Rocca GD, Roilides E, Sganga G, Walsh TJ, Tascini C, Tumbarello M, Menichetti F, Righi E, Eckmann C, Viscoli C, Shorr AF, Leroy O, Petrikos G, De Rosa FG. A research agenda on the management of intra-abdominal candidiasis: results from a consensus of multinational experts. Intensive Care Med. 2013 Dec;39(12):2092-106.</p>



## Itraconazole

Indication Hors RBU	Critères cliniques motivant la prescription	Bibliographie
<b>« Prophylaxie de l'aspergillose pulmonaire invasive chez les patients greffés du poumon ou au cas par cas chez des patients à risque**, notamment dans un contexte de travaux »</b>	** There are other high-risk patients, such as those with refractory leukemia, those with solid tumors, other SOT recipients, those receiving corticosteroid therapy, those with liver failure, those with COPD with progressive infiltrates despite antibiotics, and critically ill patients in whom empiric therapy may be warranted on a case-by-case basis (IDSA, CID 2016)	Patterson TF, Thompson GR 3rd, Denning DW, Fishman JA, Hadley S, Herbrecht R, Kontoyiannis DP, Marr KA, Morrison VA, Nguyen MH, Segal BH, Steinbach WJ, Stevens DA, Walsh TJ, Wingard JR, Young JA, Bennett JE. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Aug 15;63(4):e1-e60.



## Micafungine

Indication Hors RBU	Critères cliniques motivant la prescription	Bibliographie
<p>« Prophylaxie de l'aspergillose pulmonaire invasive chez les patients greffés du poumon ou au cas par cas chez des patients à risque**, notamment dans un contexte de travaux »</p>	<p>** There are other high-risk patients, such as those with refractory leukemia, those with solid tumors, other SOT recipients, those receiving corticosteroid therapy, those with liver failure, those with COPD with progressive infiltrates despite antibiotics, and critically ill patients in whom empiric therapy may be warranted on a case-by-case basis (IDSA, CID 2016)</p>	<p>Patterson TF, Thompson GR 3rd, Denning DW, Fishman JA, Hadley S, Herbrecht R, Kontoyiannis DP, Marr KA, Morrison VA, Nguyen MH, Segal BH, Steinbach WJ, Stevens DA, Walsh TJ, Wingard JR, Young JA, Bennett JE. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Aug 15;63(4):e1-e60.</p> <p><b>Transplantation hépatique:</b></p> <p>- Husain S, Camargo JF. Invasive Aspergillosis in solid-organ transplant recipients: Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice. Clin Transplant. 2019 Mar 21:e13544.</p> <p>- Saliba F, Pascher A, Cointault O, Laterre PF, Cervera C, De Waele JJ, Cillo U, Langer RM, Lugano M, Göran-Ericzon B, Phillips S, Tweddle L, Karas A, Brown M, Fischer L; TENPIN (Liver Transplant European Study Into the Prevention of Fungal Infection) Investigators.; TENPIN Liver Transplant European Study Into the Prevention of Fungal Infection Investigators. Randomized trial of micafungin for the prevention of invasive fungal infection in high-risk liver transplant recipients. Clin Infect Dis. 2015 Apr 1;60(7):997-1006.</p>
<p>« Traitement d'une IFI due à un champignon filamenteux ou à une levure, rare ou résistant ou sur matériel, compris dans le spectre d'action de la molécule »</p>		<p><b>Levures rares:</b></p> <p>Arendrup MC, Boekhout T, Akova M, Meis JF, Cornely OA, Lortholary O; European Society of Clinical Microbiology and Infectious Diseases Fungal Infection Study Group.; European Confederation of Medical Mycology. ESCMID and ECMM joint clinical guidelines for the diagnosis and management of rare invasive yeast infections. Clin Microbiol Infect. 2014 Apr;20 Suppl 3:76-98.</p> <p><b>Phaeohyphomycoses:</b></p> <p>Chowdhary A, Meis JF, Guarro J, de Hoog GS, Kathuria S, Arendrup MC, Arıkan-Akdaglı S, Akova M, Boekhout T, Caira M, Guinea J, Chakrabarti A, Dannaoui E, van Diepeningen A, Freiburger T, Groll AH, Hope WW, Johnson E, Lackner M, Lagrou K, Lanternier F, Lass-Flörl C, Lortholary O, Meletiadis J, Muñoz P, Pagano L, Petrikos G, Richardson MD, Roilides E, Skiada A, Tortorano AM, Ullmann AJ, Verweij PE, Cornely OA, Cuenca-Estrella M; European Society of Clinical Microbiology and Infectious Diseases Fungal Infection Study Group.; European Confederation of Medical Mycology. ESCMID and ECMM joint clinical guidelines for the diagnosis and management of systemic phaeohyphomycosis: diseases caused by black fungi. Clin Microbiol Infect. 2014 Apr;20 Suppl 3:47-75.</p> <p><b>Rare moulds:</b></p> <p>Hoeningl M, Salmanton-García J, Walsh TJ, Nucci M, Neoh CF, Jenks JD, Lackner M, Sprute R, Al-Hatmi AMS, Bassetti M, Carlesse F, Freiburger T, Koehler P, Lehrnbecher T, Kumar A, Prattes J, Richardson M, Revankar S, Slavin MA, Stemler J, Spiess B, Taj-Aldeen SJ, Warris A, Woo PCY, Young JH, Albus K, Arenz D, Arsic-Arsenijevic V, Bouchara JP, Chinniah TR, Chowdhary A, de Hoog GS, Dimopoulos G, Duarte RF, Hamal P, Meis JF, Mfinanga S, Queiroz-Telles F, Patterson TF, Rahav G, Rogers TR, Rotstein C, Wahyuningsih R, Seidel D, Cornely OA. Global guideline for the diagnosis and management of rare mould infections: an initiative of the European Confederation of Medical Mycology in cooperation with the International Society for Human and Animal Mycology and the American Society for Microbiology. Lancet Infect Dis. 2021 Aug;21(8):e246-e257.</p>



## Posaconazole

Indication Hors RBU	Critères cliniques motivant la prescription	Bibliographie
<p><b>« Prophylaxie d'une infection fongique invasive chez un patient à risque, notamment dans un contexte de neutropénie prolongée (&gt; 10 jours) »</b></p>		<p>Döring M, Eikemeier M, Cabanillas Stanchi KM, Hartmann U, Ebinger M, Schwarze CP, Schulz A, Handgretinger R, Müller I. Antifungal prophylaxis with posaconazole vs. fluconazole or itraconazole in pediatric patients with neutropenia. <i>Eur J Clin Microbiol Infect Dis</i>. 2015 Jun;34(6):1189-200.</p> <p>Sung AH, Marcella SW, Xie Y. An update to the cost-effectiveness of posaconazole vs fluconazole or itraconazole in the prevention of invasive fungal disease among neutropenic patients in the United States. <i>J Med Econ</i>. 2015 May;18(5):341-8.</p> <p>Duarte RF, López-Jiménez J, Cornely OA, Laverdiere M, Helfgott D, Haider S, Chandrasekar P, Langston A, Perfect J, Ma L, van Iersel ML, Connelly N, Kartsonis N, Waskin H. Phase 1b study of new posaconazole tablet for prevention of invasive fungal infections in high-risk patients with neutropenia. <i>Antimicrob Agents Chemother</i>. 2014 Oct;58(10):5758-65.</p> <p>Lundberg J, Höglund M, Björkholm M, Åkerborg Ö. Economic evaluation of posaconazole versus fluconazole or itraconazole in the prevention of invasive fungal infection in high-risk neutropenic patients in Sweden. <i>Clin Drug Investig</i>. 2014 Jul;34(7):483-9.</p>
<p><b>« Traitement d'une IFI due à un champignon filamenteux ou à une levure, rare ou résistant ou sur matériel, compris dans le spectre d'action de la molécule »</b></p>		<p><b>Levures rares:</b> Arendrup MC, Boekhout T, Akova M, Meis JF, Cornely OA, Lortholary O; European Society of Clinical Microbiology and Infectious Diseases Fungal Infection Study Group.; European Confederation of Medical Mycology. ESCMID and ECMM joint clinical guidelines for the diagnosis and management of rare invasive yeast infections. <i>Clin Microbiol Infect</i>. 2014 Apr;20 Suppl 3:76-98.</p> <p><b>Phaeohyphomycoses:</b> Chowdhary A, Meis JF, Guarro J, de Hoog GS, Kathuria S, Arendrup MC, Arkan-Akdagli S, Akova M, Boekhout T, Caira M, Guinea J, Chakrabarti A, Dannaoui E, van Diepeningen A, Freiburger T, Groll AH, Hope WW, Johnson E, Lackner M, Lagrou K, Lanternier F, Lass-Flörl C, Lortholary O, Meletiadis J, Muñoz P, Pagano L, Petrikos G, Richardson MD, Roilides E, Skiada A, Tortorano AM, Ullmann AJ, Verweij PE, Cornely OA, Cuenca-Estrella M; European Society of Clinical Microbiology and Infectious Diseases Fungal Infection Study Group.; European Confederation of Medical Mycology. ESCMID and ECMM joint clinical guidelines for the diagnosis and management of systemic phaeohyphomycosis: diseases caused by black fungi. <i>Clin Microbiol Infect</i>. 2014 Apr;20 Suppl 3:47-75.</p> <p><b>Rare moulds:</b> Hoenigl M, Salmanton-García J, Walsh TJ, Nucci M, Neoh CF, et al. Global guideline for the diagnosis and management of rare mould infections: an initiative of the European Confederation of Medical Mycology in cooperation with the International Society for Human and Animal Mycology and the American Society for Microbiology. <i>Lancet Infect Dis</i>. 2021 Aug;21(8):e246-e257.</p> <p><b>Mucormycoses:</b> Cornely OA, Alastruey-Izquierdo A, Arenz D, Chen SCA, Dannaoui E, Hochhegger B, et al; Mucormycosis ECMM MSG Global Guideline Writing Group. Global guideline for the diagnosis and management of mucormycosis: an initiative of the European Confederation of Medical Mycology in cooperation with the Mycoses Study Group Education and Research Consortium. <i>Lancet Infect Dis</i>. 2019 Dec;19(12):e405-e421.</p>





## Voriconazole

Indication Hors RBU	Critères cliniques motivant la prescription	Bibliographie
<p><b>« Prophylaxie de l'aspergillose pulmonaire invasive chez les patients greffés du poumon ou au cas par cas chez des patients à risque**, notamment dans un contexte de travaux »</b></p>	<p>** There are other high-risk patients, such as those with refractory leukemia, those with solid tumors, other SOT recipients, those receiving corticosteroid therapy, those with liver failure, those with COPD with progressive infiltrates despite antibiotics, and critically ill patients in whom empiric therapy may be warranted on a case-by-case basis (IDSA, CID 2016)</p>	<p>- Patterson TF, Thompson GR 3rd, Denning DW, Fishman JA, Hadley S, Herbrecht R, Kontoyiannis DP, Marr KA, Morrison VA, Nguyen MH, Segal BH, Steinbach WJ, Stevens DA, Walsh TJ, Wingard JR, Young JA, Bennett JE. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Aug 15;63(4):e1-e60. - Husain S, Camargo JF. Invasive Aspergillosis in solid-organ transplant recipients: Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice. Clin Transplant. 2019 Mar 21:e13544.</p>
<p><b>« Traitement pré-emptif d'une aspergillose pulmonaire invasive, chez un patient à risque**, asymptomatique ou fébrile, avec un biomarqueur positif sans autre documentation microbiologique, notamment dans un contexte de neutropénie prolongée (&gt; 10 jours) ou de transplantation pulmonaire »</b></p>	<p>** There are other high-risk patients, such as those with refractory leukemia, those with solid tumors, other SOT recipients, those receiving corticosteroid therapy, those with liver failure, those with COPD with progressive infiltrates despite antibiotics, and critically ill patients in whom empiric therapy may be warranted on a case-by-case basis (IDSA, CID 2016)</p>	<p>- Patterson TF, Thompson GR 3rd, Denning DW, Fishman JA, Hadley S, Herbrecht R, Kontoyiannis DP, Marr KA, Morrison VA, Nguyen MH, Segal BH, Steinbach WJ, Stevens DA, Walsh TJ, Wingard JR, Young JA, Bennett JE. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Aug 15;63(4):e1-e60. - Husain S, Camargo JF. Invasive Aspergillosis in solid-organ transplant recipients: Guidelines from the American Society of Transplantation Infectious Diseases Community of Practice. Clin Transplant. 2019 Mar 21:e13544.</p>



## Voriconazole (suite)

Indication Hors RBU	Critères cliniques motivant la prescription	Bibliographie
<p><b>« Traitement empirique d'une forte présomption d'aspergillose pulmonaire invasive, chez un patient septique à risque**, sans autre documentation microbiologique »</b></p>	<p>** There are other high-risk patients, such as those with refractory leukemia, those with solid tumors, other SOT recipients, those receiving corticosteroid therapy, those with liver failure, those with COPD with progressive infiltrates despite antibiotics, and critically ill patients in whom empiric therapy may be warranted on a case-by-case basis (IDSA, CID 2016)</p>	<p>Patterson TF, Thompson GR 3rd, Denning DW, Fishman JA, Hadley S, Herbrecht R, Kontoyannis DP, Marr KA, Morrison VA, Nguyen MH, Segal BH, Steinbach WJ, Stevens DA, Walsh TJ, Wingard JR, Young JA, Bennett JE. Practice Guidelines for the Diagnosis and Management of Aspergillosis: 2016 Update by the Infectious Diseases Society of America. Clin Infect Dis. 2016 Aug 15;63(4):e1-e60.</p>
<p><b>« Traitement d'une IFI due à un champignon filamenteux ou à une levure, rare ou résistant ou sur matériel, compris dans le spectre d'action de la molécule »</b></p>		<p><b>Levures rares:</b> Arendrup MC, Boekhout T, Akova M, Meis JF, Cornely OA, Lortholary O; European Society of Clinical Microbiology and Infectious Diseases Fungal Infection Study Group.; European Confederation of Medical Mycology. ESCMID and ECMM joint clinical guidelines for the diagnosis and management of rare invasive yeast infections. Clin Microbiol Infect. 2014 Apr;20 Suppl 3:76-98.</p> <p><b>Phaeohyphomycoses:</b> Chowdhary A, Meis JF, Guarro J, de Hoog GS, Kathuria S, Arendrup MC, Arikani-Akdagli S, Akova M, Boekhout T, Caira M, Guinea J, Chakrabarti A, Dannaoui E, van Diepeningen A, Freiburger T, Groll AH, Hope WW, Johnson E, Lackner M, Lagrou K, Lanternier F, Lass-Flörl C, Lortholary O, Meletiadis J, Muñoz P, Pagano L, Petrikos G, Richardson MD, Roilides E, Skiada A, Tortorano AM, Ullmann AJ, Verweij PE, Cornely OA, Cuenca-Estrella M; European Society of Clinical Microbiology and Infectious Diseases Fungal Infection Study Group.; European Confederation of Medical Mycology. ESCMID and ECMM joint clinical guidelines for the diagnosis and management of systemic phaeohyphomycosis: diseases caused by black fungi. Clin Microbiol Infect. 2014 Apr;20 Suppl 3:47-75.</p> <p><b>Rare moulds:</b> Hoenigl M, Salmanton-García J, Walsh TJ, Nucci M, Neoh CF, et al. Global guideline for the diagnosis and management of rare mould infections: an initiative of the European Confederation of Medical Mycology in cooperation with the International Society for Human and Animal Mycology and the American Society for Microbiology. Lancet Infect Dis. 2021 Aug;21(8):e246-e257.</p> <p><b>Endophtalmie:</b> Bienvenu AL, Aussedat M, Mathis T, Guillaud M, Leboucher G, Kodjikian L. Intravitreal Injections of Voriconazole for Candida Endophthalmitis: A Case Series. Ocul Immunol Inflamm. 2019 Feb 27:1-8.</p>