Online-Only Abstract

Simultaneous detection of gastrointestinal pathogens with a multiplex Luminex-based molecular assay in stool samples from diarrhoeic patients

C. Mengelle[1], J. M. Mansuy[1], M. F. Prere[2,3], E. Grouteau[4], I. Claudet[4], N. Kamar[5], A. Huynh[6], G. Plat[7], M. Benard[8], N. Marty[2], A. Valentin[9,10], A. Berry[10,11] and J. Izopet[1,11]

1) *Department of Virology, Toulouse University Hospital,* 2) *Department of Bacteriology, Toulouse University Hospital,* 3) *Department of Microbiology and Molecular Genetics, CNRS – Toulouse University, UMR 5100,* 4) *Children Emergency Unit, Toulouse University Hospital,* 5) *Organ Transplantation Unit, Toulouse University Hospital,* 6) *Adult Haematological Unit, Toulouse University Hospital,* 7) *Children's Haematological Unit, Toulouse University Hospital,* 8) *Neonatal Unit, Toulouse University Hospital,* 9) *Department of Parasitology-Mycology, Toulouse University Hospital,* 10) *UMR 152 IRD-UPS, Toulouse University and* 11) *Department of Physiopathology, Toulouse Purpan, Unité Inserm U563, Toulouse, France*

Original Submission: 21 December 2012; **Revised Submission:** 10 April 2013; **Accepted:** 24 April 2013
Editor: E. Bottieau
Article published online: 29 April 2013
Clin Microbiol Infect 2013; **19:** E458–E465
10.1111/1469-0691.12255

Abstract

We have evaluated the multiplex molecular method xTAG® Gastrointestinal Panel (GPP) for detecting pathogens in stool samples of diarrhoeic patients. We collected 440 samples from 329 patients (male:female ratio of 1.2:1), including 102 immunosuppressed adults, 50 immunosuppressed children, 56 children attending the neonatal unit and 121 children attending the emergency unit. Of these, 176 samples from 162 patients were xTAG® GPP positive (102 viruses, 61 bacteria and 13 parasites) and the assay was more sensitive than the conventional test for detecting rotavirus ($p < 0.01$), noroviruses ($p < 0.0001$), *Salmonella* spp. ($p < 0.001$), *Campylobacter* spp. ($p < 0.001$) and toxigenic *Clostridium difficile* (p 0.005). The predominant pathogens were viruses (23.2%), with rotavirus (15.9%) being the most common. Bacterial agents were detected in 13.9%; the most common was *Salmonella* spp. (4.8%). Parasites were detected in 2.9%; *Cryptosporidium* spp. (2%) was the most common. There were 31 co-infections (7% of samples), involving two pathogens in 23 (5.2%) and three pathogens in eight (1.8%) samples. There were 113 (92.6%) positive samples from the children attending the emergency unit, 25 (17%) positive samples from immunosuppressed adults, 22 (25.3%) positive samples from immunosuppressed children and 16 (19%) positive samples from children attending the neonatal unit. The low turnaround time and technical hands-on time make this multiplex technique convenient for routine use. Nevertheless, conventional bacterial culture and parasitological stool examination are still required to detect other pathogens in specific cases and to determine susceptibility to antibiotics.

©2013 The Authors
Clinical Microbiology and Infection ©2013 European Society of Clinical Microbiology and Infectious Diseases