INTRODUCTION
The intermediate spreading Australian-Antarctic Ridge (AAR) in the Southern Ocean is one of the largest unexplored regions of the global mid-ocean ridge systems because of limited accessibility due to harsh environment. Although activities of hydrothermal vents are supposed to be present in AAR, microbiological data are not available on cultivatable bacteria associated with those environments.

METHODS AND MATERIALS
During the IBRV Araon cruise in 2013, 14 samples of vent plumes were collected with Niskin bottles by CTD (conductivity, temperature and depth with potential reduction and turbidity sensors integrated) toyo-ing. Among the colonies grown on marine agar plates at 20°C from the vent samples, 139 colonies were randomly selected and purified for further investigations, determination of maximum temperature for growth and identification by 16S rRNA gene sequencing.

RESULTS
52 out of 139 (ca. 37%) strains were able to grow at 45°C, which are referred as thermophilic bacteria here, while the others were mesophiles. Among the isolated thermophilic bacteria, 42 strains were affiliated with Firmicutes and 9 strains with Gamma-proteobacteria based on 16S rRNA gene sequences. Mesophilic bacteria comprised of Actinobacteria (7 strains) and the above-mentioned groups (i.e. 17 and 64 strains for Firmicutes and Gamma-proteobacteria, respectively). Notably, two Bacillus licheniformis strains represented fast growing at the high temperature of 60°C, which are the first strains originated from deep-sea hydrothermal vent environments.

DISCUSSION
As expected, thermophilic bacteria were abundant in the hydrothermal vent plumes. Gram-positive bacteria, Firmicutes, were dominant in the thermophilic bacteria in the study area, while Proteobacteria are often dominant in hydrothermal vents in other areas. This discrepancy might be attributed to different sources of vent fluids or different types of vent in respect to temperature and chemical compositions.

KEYWORDS: THERMOPHILE, BACTERIA, VENT, SOUTHERN OCEAN