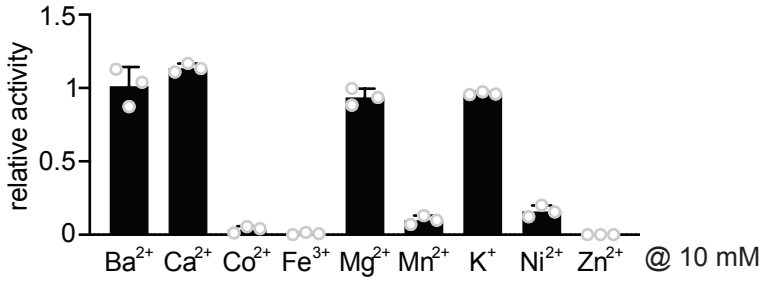

Figure S1. Sensitivity of *Aa*Cel5A to various metal ions on RAC.
Mean ± s.d. (n = 3). The counterion was chloride. It should be noted that Fe^{3+} and Zn^{2+} inevitably precipitated at pH 7.0 and 55°C and therefore their effective concentrations were most certainly lower than 10 mM. On the other hand, Ba^{2+} precipitated with SO_4^{2-} during phenol-H_2SO_4 measurement of soluble cellodextrins, but its effective concentration would not be expected to change. Nonetheless, all the precipitates were removed via centrifugation before measurement. Activity was relative to that without any ion supplementation.

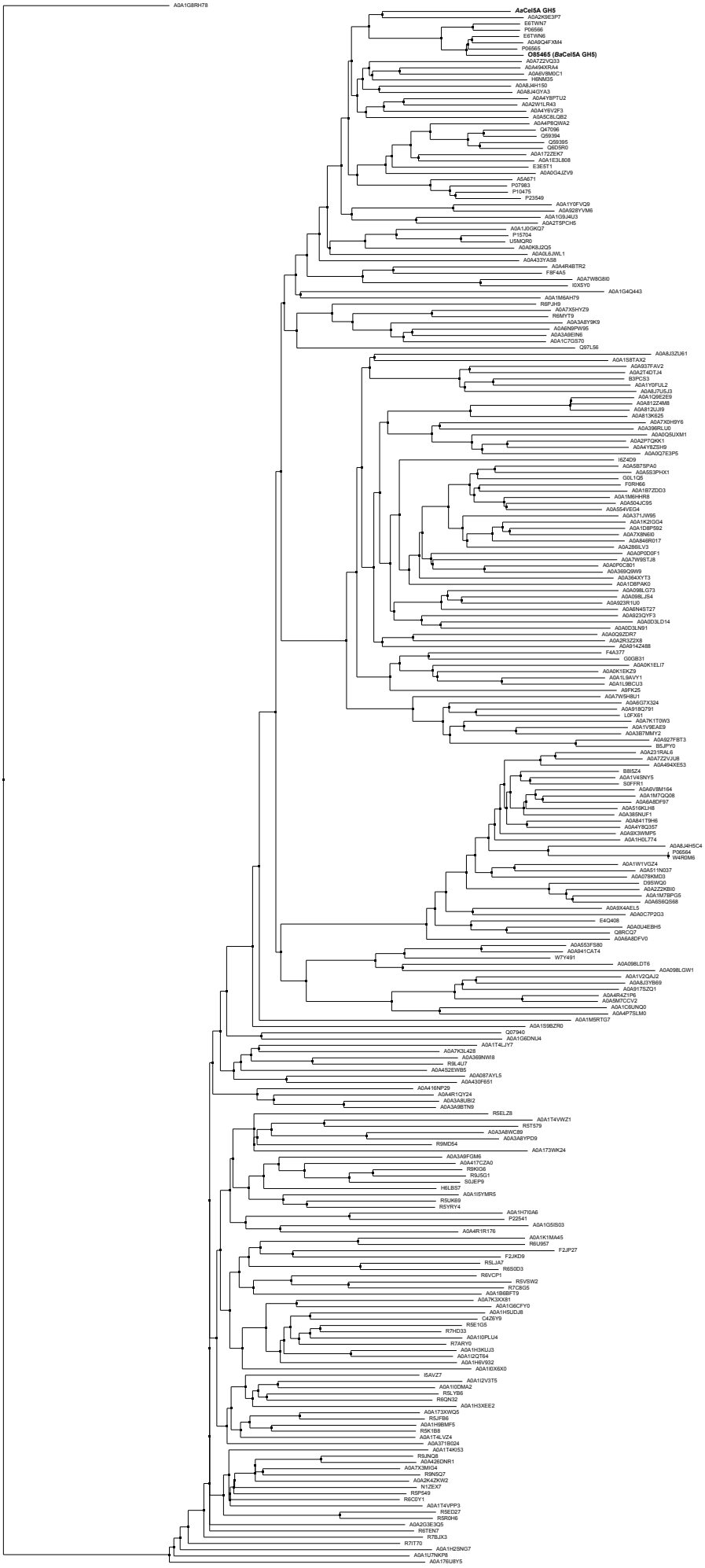

Figure S2. Phylogenetic analysis of the GH domains of *Aa*Cel5A and its homologues.
Sequences in Figure 3C were analyzed in Jalview (version 2.11.4.0) and phylogeny was inferred by the Neighbour Joining method (BLOSUM62). *Aa*Cel5A and *Ba*Cel5A were in boldface.

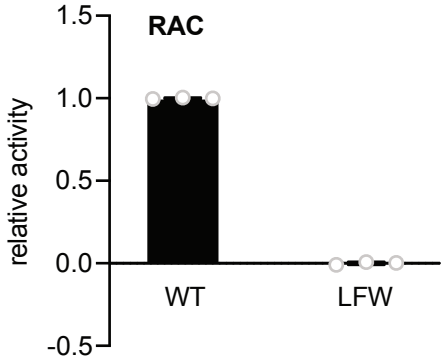

Figure S3. The LFW mutant is catalytically inactive on RAC.
WT and the LFW mutant at 1 μg ml^{-1} were incubated with RAC for one hour at 55°C, and soluble sugars were measured using the phenol-H_2SO_4 method as described in the Experimental procedures. Controls containing heat inactivated enzymes were also included and used to subtract from the tested samples. Activity was reported relative to that of WT. It should be noted that for the LFW mutant, we could barely detect any activity and in one replicate we even obtained a negative value, which was included nonetheless in data presentation. Mean ± s.d. (n = 3).

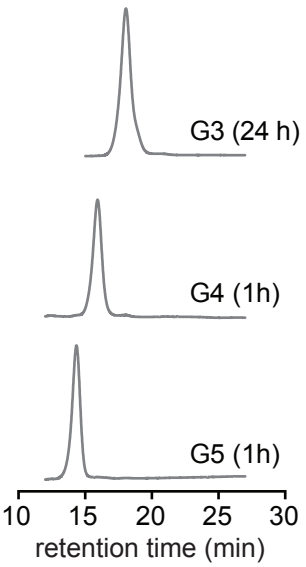

Figure S4. Cellotriose, cellotetraose, and cellopentaose are stable in the absence of *Aa*Cel5A.
Cellodextrins were incubated under the same reaction condition but without enzymes for the indicated time and analyzed by HPLC.

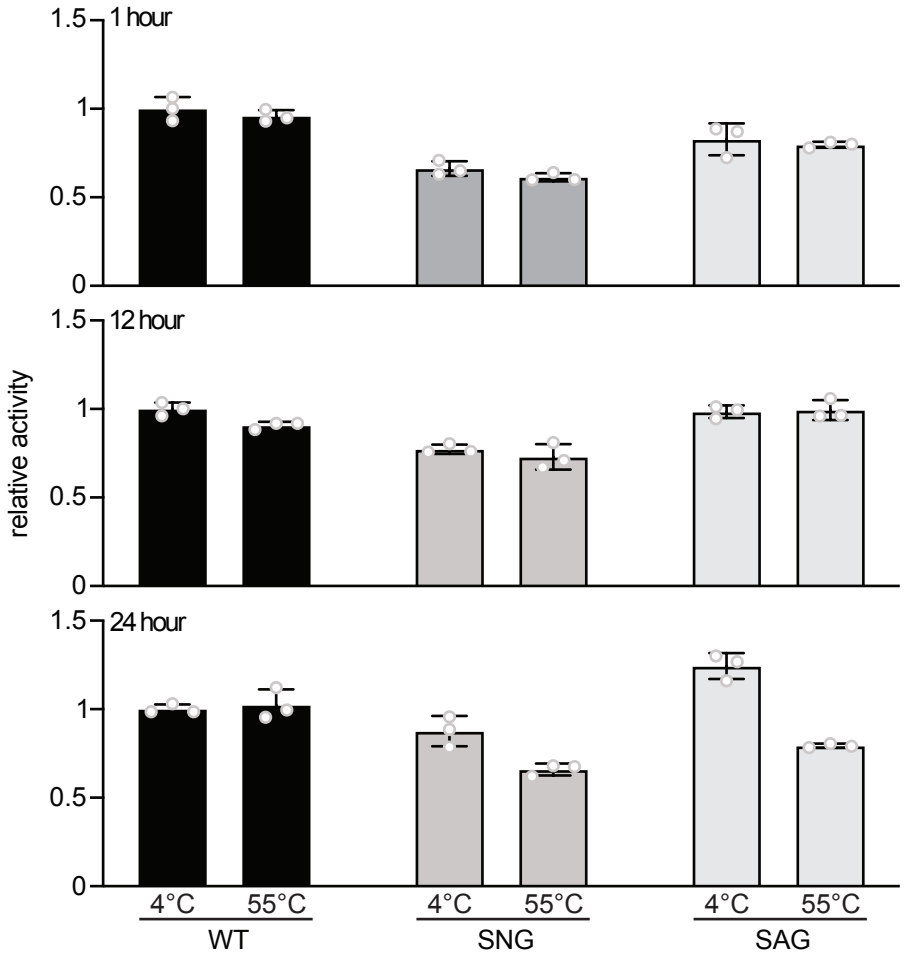

Figure S5. His^{70} appears to be important for enzyme stability during prolonged incubation at 55°C. Enzymes were either kept at 4°C or 55°C for varying time. RAC was added and the reactions were allowed to proceed for one hour. Soluble sugars were measured using the phenol-H_2SO_4 method as described in the Experimental procedures. Activity was reported relative to that of WT kept at 4°C. Mean ± s.d. (n = 3).