

University of Groningen

## Identification of acceptor substrate binding subsites+2 and+3 in the amyloamylase from *Thermus thermophilus* HB8

Kaper, Thijs; Leemhuis, Hans; Uitdehaag, Joost C. M.; van der Veen, Bart A.; Dijkstra, Bauke W.; van der Maarel, Marc; Dijkhuizen, Lubbert; van Veen, Betty

*Published in:*  
Biochemistry

*DOI:*  
[10.1021/bi602408j](https://doi.org/10.1021/bi602408j)

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2007

[Link to publication in University of Groningen/UMCG research database](#)

### *Citation for published version (APA):*

Kaper, T., Leemhuis, H., Uitdehaag, J. C. M., van der Veen, B. A., Dijkstra, B. W., van der Maarel, M. J. E. C., ... van Veen, B. (2007). Identification of acceptor substrate binding subsites+2 and+3 in the amyloamylase from *Thermus thermophilus* HB8. *Biochemistry*, 46(17), 5261-5269. DOI: 10.1021/bi602408j

### **Copyright**

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

### **Take-down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*

**Table S1.** Sequences used for construction of Sequence Logos in Figure 3.

**CGTase sequences**

<b>Accession #</b>	<b>Organisms</b>
Q5ZEQ7	<i>Anaerobranca gottschalkii</i>
Q7X3T0	<i>Bacillus agaradhaerens</i>
P30920	<i>Bacillus circulans</i>
Q9F5W3	<i>Bacillus circulans</i>
P43379	<i>Bacillus circulans.</i>
Q8L3E0	<i>Bacillus clarkii</i>
P14014	<i>Bacillus licheniformis.</i>
P27036	<i>Bacillus ohbensis.</i>
Q59239	<i>Bacillus sp.</i>
O82984	<i>Bacillus sp.</i>
Q5U9V9	<i>Bacillus sp.</i> G1-2004
P05618	<i>Bacillus sp.</i> Strain 1011
P31746	<i>Bacillus sp.</i> Strain 1-1
P30921	<i>Bacillus sp.</i> Strain 17-1
P09121	<i>Bacillus sp.</i> Strain 38-2
P31747	<i>Bacillus sp.</i> Strain 6.6.3
P17692	<i>Bacillus sp.</i> Strain B1018
Q5U9W0	<i>Bacillus sp.</i> TS1-1
P31797	<i>Bacillus stearothermophilus</i>
Q9ZAQ0	<i>Bacillus stearothermophilus</i>
O30565	<i>Brevibacillus brevis</i>
P08704	<i>Klebsiella oxytoca</i>
Q8RMG0	<i>Nostoc sp.</i> Strain PCC 9229
P31835	<i>Paenibacillus macerans</i>
P04830	<i>Paenibacillus macerans</i>
Q8X268	<i>Pyrococcus kodakaraensis</i>
P26827	<i>Thermoanaerobacter thermosulfuregenes</i>
Q9UWN2	<i>Thermoscoccus sp.</i> B1001
Q1VFW4	<i>Vibrio alginolyticus</i> 12G01
Q87FT5	<i>Vibrio parahaemolyticus.</i>

**$\alpha$ -amylase sequences**

<b>Accession #</b>	<b>Organism</b>
P53354	<i>Aedes aegypti</i>
P22630	<i>Aeromonas hydrophila</i>
P00692	<i>Bacillus amyloliquefaciens</i>
P08137	<i>Bacillus circulans</i>
P06278	<i>Bacillus licheniformis</i>
P20845	<i>Bacillus megaterium</i>
P19571	<i>Bacillus sp.</i> Strain 707
P19531	<i>Bacillus stearothermophilus</i>
P06279	<i>Bacillus stearothermophilus</i>

P00691	<i>Bacillus subtilis</i>
Q08806	<i>Debaryomyces occidentalis</i>
P14899	<i>Dictyoglomus thermophilum</i>
Q23835	<i>Drosophila ananassae</i>
O18345	<i>Drosophila ananassae</i>
Q23834	<i>Drosophila ananassae</i>
Q9GQV3	<i>Drosophila jambulina</i>
P81641	<i>Drosophila melanogaster</i>
P08144	<i>Drosophila melanogaster</i>
O18408	<i>Drosophila melanogaster</i>
O18552	<i>Drosophila pseudoobscura</i>
O18420	<i>Drosophila subobscura</i>
Q9BN01	<i>Drosophila yakuba</i>
O76264	<i>Drosophila yakuba</i>
P19961	<i>Homo sapiens</i>
P04746	<i>Homo sapiens</i>
P04745	<i>Homo sapiens</i>
P04747	<i>Hordeum vulgare</i>
P00688	<i>Mus musculus</i>
P00687	<i>Muse musculus</i>
P27934	<i>Oriza sativa</i>
P17654	<i>Oryza sativa</i>
P27933	<i>Oryza sativa</i>
P91778	<i>Pecten maximus</i>
P22963	<i>Pseudomonas saccharophila</i>
P13507	<i>Pseudomonas stutzeri</i>
P00689	<i>Rattus norvegicus</i>
P56634	<i>Tenebrio molitor</i>

#### **Amylomaltase sequences**

<b>Accession #</b>	<b>Organism</b>
BA000019	<i>Anabaena</i> sp. (strain 7120)
AE000704	<i>Aquifex aeolicus</i> VF5
AC002409	<i>Arabidopsis thaliana</i>
AY037231	<i>Arabidopsis thaliana</i>
NCC2705	<i>Bifidobacterium longum</i>
AE014792	<i>Bifidobacterium longum</i>
AE014673	<i>Bifidobacterium longum</i> NCC2705
AE001127,	<i>Borrelia burgdorferi</i>
AE002303	<i>Chlamydia muridarum</i>
AE001283	<i>Chlamydia trachomatis</i> D/UW-3/CX
AF307842	<i>Chlamydomonas reinhardtii</i>
AE016995	<i>Chlamydophila caviae</i> GPIC

AE017158 *Chlamydomonas reinhardtii* TW-183  
L37874 *Clostridium butyricum* NCIMB 7423  
AP005221 *Corynebacterium efficiens* YS-314  
AX065283 *Corynebacterium glutamicum*  
M32793 *Escherichia coli* K12  
AE010594 *Fusobacterium nucleatum* subsp. *nucleatum* ATCC 25586  
U32815 *Haemophilus influenzae* Rd  
AE006302 *Lactococcus lactis* subsp. *lactis* IL1403  
AL022021 *Mycobacterium tuberculosis* H37Rv  
AP004009 *Oryza sativa*  
AE006089 *Pasteurella multocida* PM70  
AE004643 *Pseudomonas aeruginosa* PAO1  
AE009809 *Pyrobaculum aerophilum* IM2  
AL646077 *Ralstonia solanacearum* GMI1000  
AE016847 *Salmonella enterica* subsp. *enterica* serovar Typhi Ty2  
AE015595 *Shewanella oneidensis* MR-1  
X68664 *Solanum tuberosum*  
AE014257 *Streptococcus agalactiae* 2603V/R  
AE014987 *Streptococcus mutans* UA159  
J01796 *Streptococcus pneumoniae* TIGR4  
AE006568 *Streptococcus pyogenes* M1 GAS SF370  
AE010052 *Streptococcus pyogenes* MGAS8232  
AL138662 *Streptomyces coelicolor* A3(2)  
D90900 *Synechocystis* sp. PCC 6803  
AP005371 *Thermosynechococcus elongatus* BP-1  
AP008226 *Thermus thermophilus* HB8  
AE004345 *Vibrio cholerae* N16961  
AE011669 *Xanthomonas axonopodis* pv. *citri* str. 306  
AE012138 *Xanthomonas campestris* pv. *campestris* str. ATCC 33913  
AJ414141 *Yersinia pestis* CO92