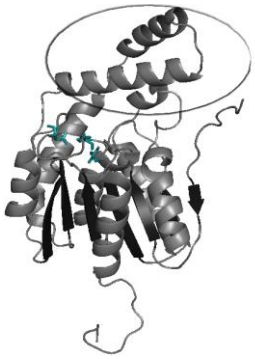
Objective 3. Purified enzyme product and identification of sequences



Tridimensional model of the hydrolase from *A. flavithermus* T1

```
A.flavithermus_T1       MMKMIPPQPFTFEAGERAVLLLHGFTGNSADVRMLGRFLQSKGYTCHAPIYKGHGVPPEE 60
A.flavithermus_WK1      MMKMIPPQPFTFEAGERAVLLLHGFTGNSADVRMLGRFLQSKGYTCHAPIYKGHGVPPEE 60
Anoxybacillus_sp._PDF1  MVKMIPPQPFTFEAGERAVLLLHGFTGNSADVRMLGRFLQAKGYTCHAPIYKGHGVPPEE 60
G.stearothermophilus    -MKIVPPKPFFFEAGERAVLLLHGFTGNSADVRMLGRFLESKGYTCHAPIYKGHGVPPEE 59
G.kaustophilus_HTA426   -MKIVPPKPFFFEAGERAVLLLHGFTGNSADVRMLGRFLESKGYTCHAPIYKGHGVPPEE 59
G.thermoglucosidans     -MKVVPPKPFTFEAGERAVLLLHGFTGNSSDVRMLGRFLEAKGYTCHAPIYKGHGVPPEE 59
G.thermoleovorans       MMKIVPPKPFFFEAGERAVLLLHGFTGNSADVRMLGRFLESKGYTCHAPIYKGHGVPPEE 60
                         :*::**:** ******************:*********::******************

A.flavithermus_T1       LVHTGPEDWWQDVINAYEHLKQK-HEKIAVVGLSLGGVFSLKLGYTVPVVGIVPMCAPMY 119
A.flavithermus_WK1      LVHTGPEDWWQDVINAYEYLKQT-HEKIAVVGLSLGGVFSLKLGYTVPVVGIVPMCAPMY 119
Anoxybacillus_sp._PDF1  LVHTGPEDWWQDVMNAYEHLKQT-HEKIAVVGLSLGGVFSLKLGYTVPVVGIVPMCAPMY 119
G.stearothermophilus    LVHTGPDDWWQDVMNGYEFLKNKGYEKIAVAGLSLGGVFSLKLGYTVPIEGIVTMCAPMY 119
G.kaustophilus_HTA426   LVHTGPDDWWQDVMNGYQFLKNKGYEKIAVAGLSLGGVFSLKLGYTVPIQGIVTMCAPMY 119
G.thermoglucosidans     LVHTGPDDWWQDVINAYEFLKNKGYEKIAVAGLSLGGVFSLKLGYTVPVVGIIPMCAPMY 119
G.thermoleovorans       LVHTGPDDWWQDVMNGYQFLKNKGYEKIAVAGLSLGGVFSLKLGYTVPTQGIVTMCAPMY 120
                        ******:******:*.*:.**:. :*****.*****************  **: ******

A.flavithermus_T1       IKSEQTMYEGVLAYAREYKKREGKSEDQIEREMVEFAKTPMKTLKALQQLIAEVRDHLDF 179
A.flavithermus_WK1      IKSEQTMYEGVLAYAREYKKREGKSEEQIEREMAEFAKTPMKTLKALQQLIADVRDHLDF 179
Anoxybacillus_sp._PDF1  IKSEQTMYEGVLAYAREYKKREGKDEEQIEREMMEFAKTPMKTLKALQQLIAEVRDHLDF 179
G.stearothermophilus    IKSEETMYEGVLEYAREYKKREGKSEEQIEQEMEKFKQTPMKTLKALQELIADVRDHLDL 179
G.kaustophilus_HTA426   IKSEETMYEGVLEYAREYKKREGKSEEQIEQEMERFKQTPMKTLKALQELIADVRAHLDL 179
G.thermoglucosidans     IKSEETMYEGVLKYAREYKKREGKTPEQIEKEMEAFQKTPMKTLKALQQLIADVRERIDL 179
G.thermoleovorans       IKSEETMYEGVLEYAREYKKREGKSEEQIEQEMERFKQTPMKTLKALQELIADVRAHLDL 180
                        ****:******* **********  :***:**  * :**********:***:** ::*:

A.flavithermus_T1       IYAPVFVVQARHDDMINPDSANIIYNGVESPVKQMKWYEESGHVITLDKEKEQLHEDIYA 239
A.flavithermus_WK1      IYAPVFVVQARHDDMINPDSANIIYNGVESPVKQIKWYEESGHVITLDKEKEQLHEDIYA 239
Anoxybacillus_sp._PDF1  IYAPIFVVQARHDDMINPDSANIIYNGVESPVKQMKWYEESGHVITLDKEKEQLHEDIYT 239
G.stearothermophilus    IYAPTFVVQARHDEMINPDSANIIYNEIESPVKQIKWYEQSGHVITLDQEKDQLHEDIYA 239
G.kaustophilus_HTA426   VYAPTFVVQARHDEMINPDSANIIYNEIESPVKQIKWYEQSGHVITLDQEKDQLHEDIYA 239
G.thermoglucosidans     IYAPTFVVQARHDEMINPDSANIIYNGIESPVKKIKWYEESGHVITLDKEKEQLHEDIYE 239
G.thermoleovorans       VYAPTFVVQARHDEMINPDSANIIYNEIESPVKQIKWYEQSGHVITLDQEKDQLHEDIYA 240
                        :*** ********:************ :*****::****:********:**:*******

A.flavithermus_T1       FLESLDW 246
A.flavithermus_WK1      FLESLDW 246
Anoxybacillus_sp._PDF1  FLESLDW 246
G.stearothermophilus    FLESLDW 246
G.kaustophilus_HTA426   FLESLDW 246
G.thermoglucosidans     FLESLDW 246
G.thermoleovorans       FLESLDW 247
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Multiple sequence alignment for *A. flavithermus* T1 Est/Lip and closely related carboxyl esterases, showing the highly conserved GXSXG sequence