

- A4-bGal : *Thermus thermophilus* A4 β -Gal
- TT2-bGal : *Thermus* sp. T2 β -Gal
- Tne-bGal : *Thermus neopolitana* β -Gal
- Hal-bGal : *Haloferax alicantei* β -Gal
- Cpi-bGal : *Carnobacterium piscicola* β -Gal
- Ype-bGal : *Yersinia pestis* β -Gal

図 1-37a 変異導入部位のGH-42のアラインメント

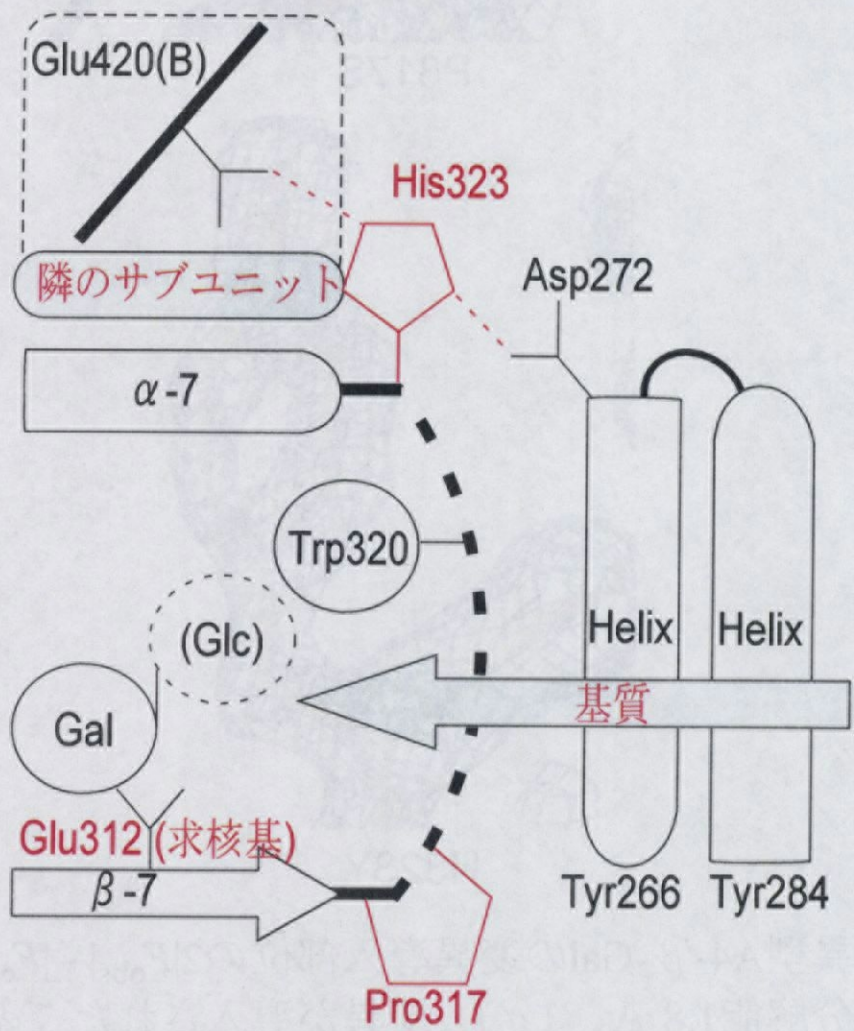


図 1-37b 変異導入部位の模式図

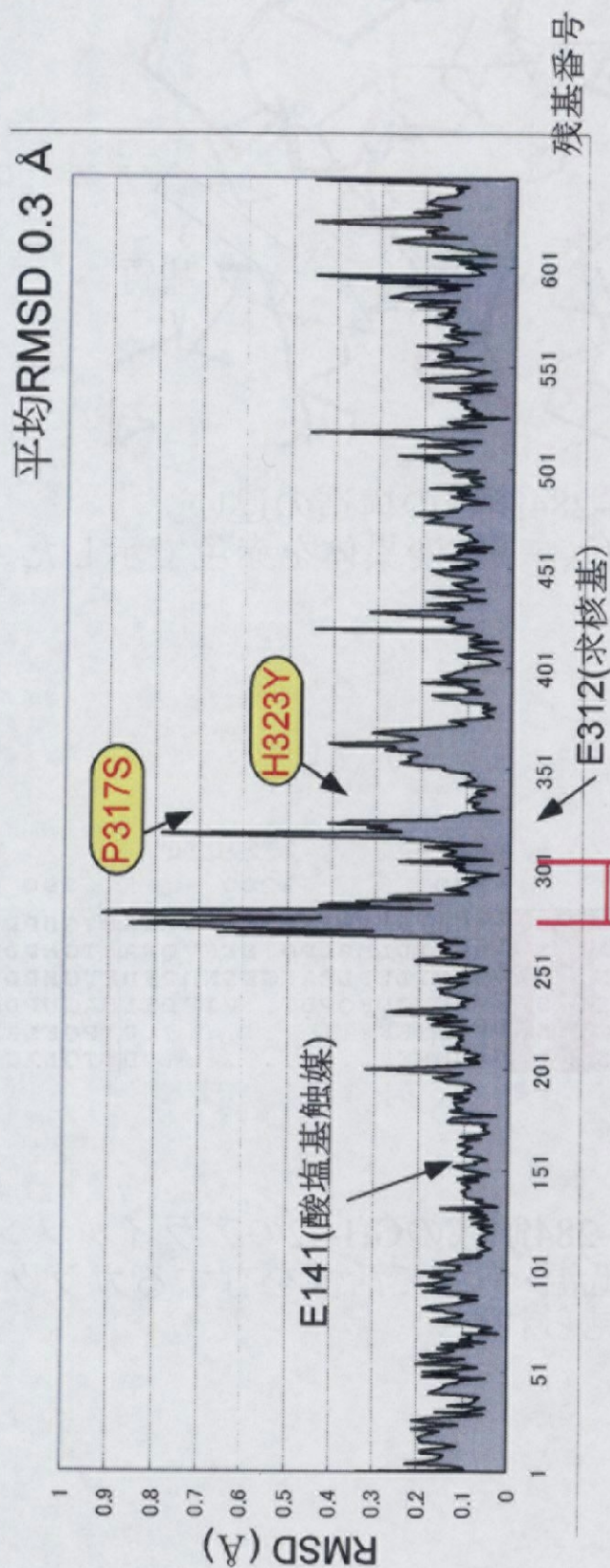


図 1-38 野生型と変異体A4-β-Galの構造の違い。266-284にかけて構造の差が大きい領域が見られる。

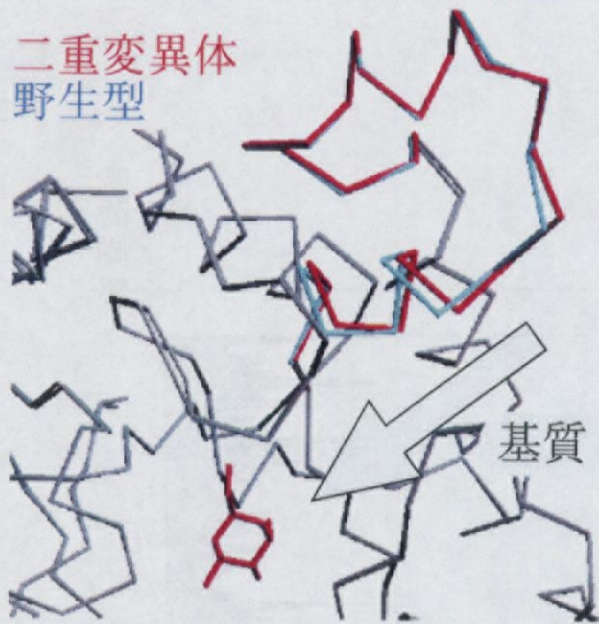


図 1-39a 266-284領域の構造の違い。
野生型を青色、二重変異体を赤色で示した。

	260	270	280	290
A4-bGal	LAQDLDFASWDSYPLGFTDLMLPPP.EEKLRYAR			RTIGHPDV
TT2-bGal	LAEDLDFAAWDSYPLGFTDLMLPLPQ.EEKVQWAR			RTIGHPDV
Tne-bGal	ISKDLDFASWDNIYPLGHTLVFLRARGESKNPFH			RVGHDPDI
Hal-bGal	LAADLDFLSWDSYPTGEVQDRPDT..PTVDEL			RAGHPDQ
Cpi-bGal	FAEEMDVVGWDSYPIPFEEK.....PYPOFLAH			
ype-bGal	LAQVDFISWDSYEMWHRK.....DETOLACY			

図 1-39a 266-284領域のGH-42のアラインメント。
この領域は低温・常温で活性を有するガラクトシダーゼには見られない。

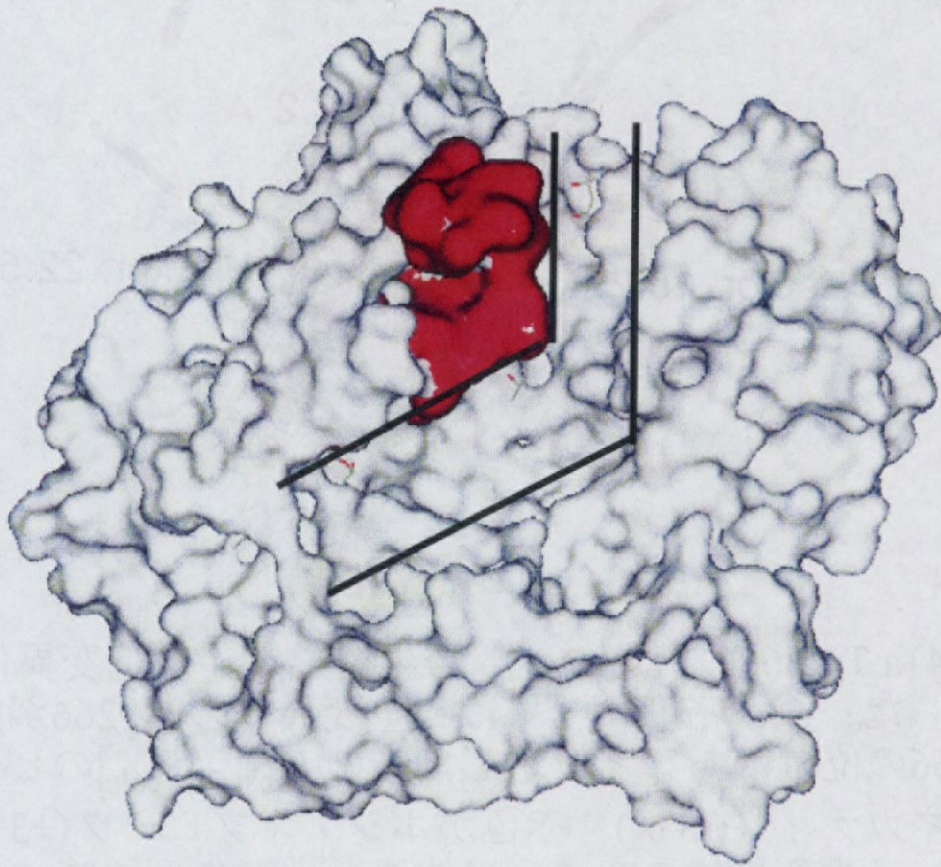


図 1-40 Y266-Y284の位置。
活性中心ポケット入り口を形成している。

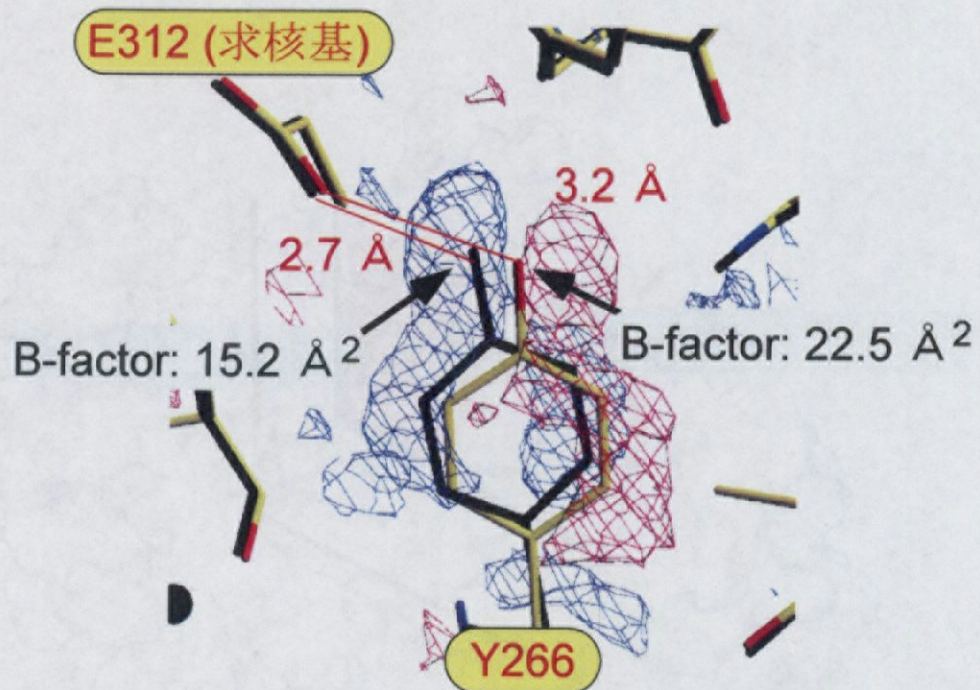


図 1-41a Tyr266の構造の差。野生型を黒、二重変異体を黄色で現した。電子密度マップは二重変異体のTyr266が野生型のTyr266の位置にあると仮定した時の $|F_{\text{obs}}| - |F_{\text{calc}}|$ のピーク。青色がネガティブ(-3σ)、赤色がポジティブピーク($+3\sigma$)。これは、二重変異体のTyr266の位置が、野生型のTyr266の位置と異なり、右側に移動していることを現している。

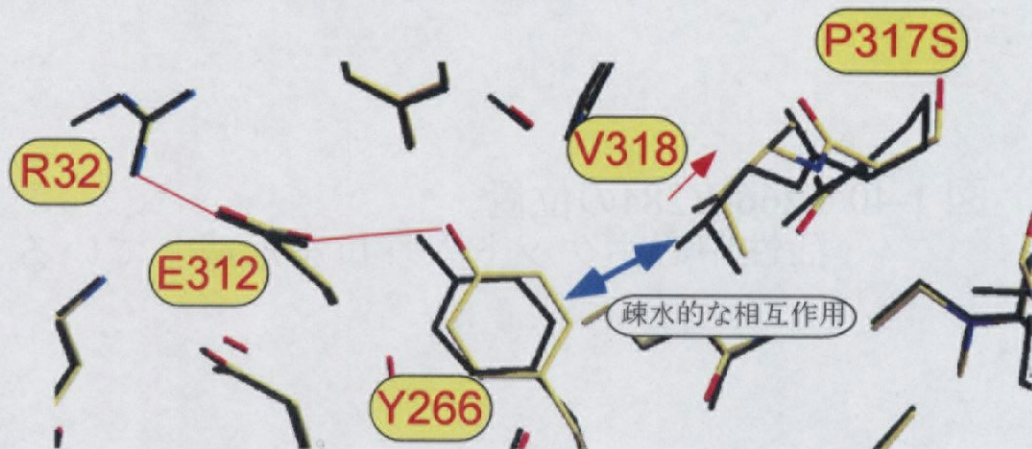


図 1-41b Tyr266の構造の動きの原因と変異導入位置。P317Sの変異により、Val318の位置が動き、それに伴い Tyr266が動いたと考えられる。

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