

SUPPORTING INFORMATION

Capnophilic lactic fermentation from *Thermotoga neapolitana*: a resourceful pathway to obtain almost enantiopure L-lactic acid.

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Figure S1. GC-MS analysis of O-trifluoroacetyl(-)-menthyl ester derivatives of DL-lactic acid, L-lactic acid and natural lactate of *T. neapolitana*, co-elution of DL-Lactic acid and natural lactic acid. (Rt 10.21 min = L-lactic acid derivative; Rt 10.25 min = D-lactic acid derivative).

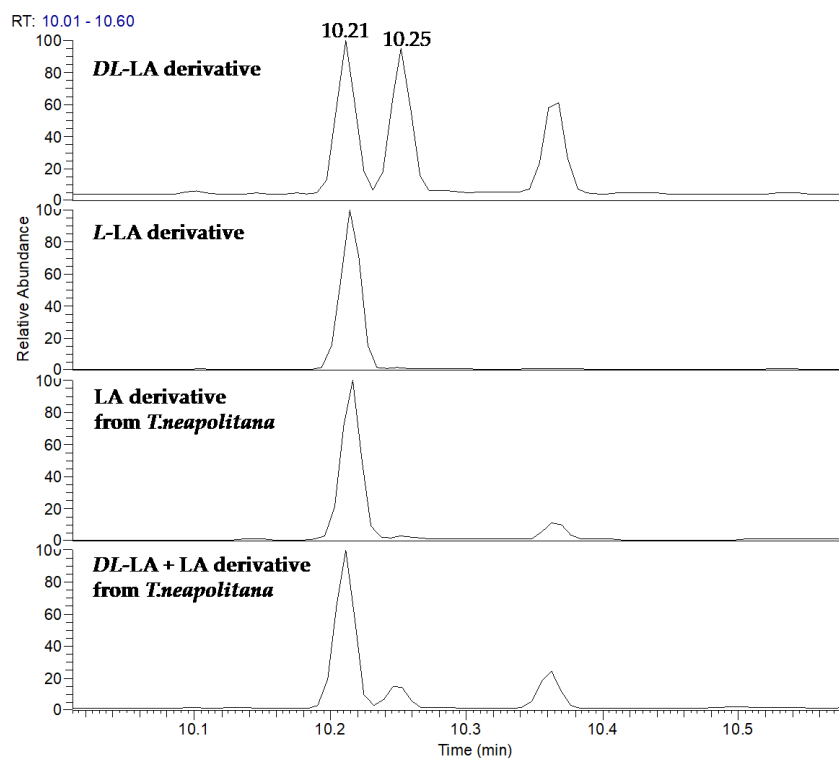


Figure S2. GC-MS chromatogram of O-trifluoroacetyl(-)-menthyl ester of lactic acid from *T. neapolitana* and integration of peaks area of *L*- and *D*-LA.

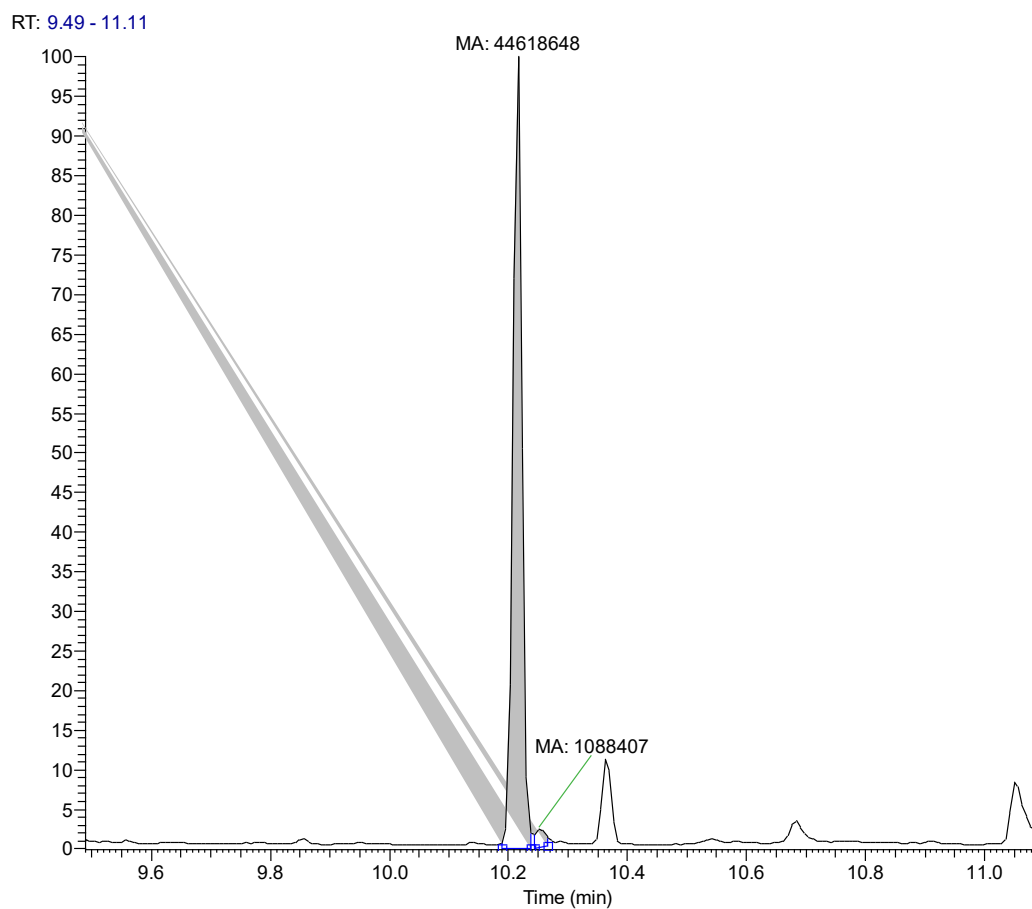


Figure S3. Sequence alignment of LDH from members of the bacterial order Thermotogales

	1	10	20	30	40	50	60
PthLDH	-----	MKVSIFGAGRVGISIAYSLLHTKIADEMVIDIDIKRAEGEVL	DL				
TmLDH	-----	MKIGIVGLGRVGSSTAFALLMKGFAREMVLIDVDRKRAEGDAL	DL				
TnLDH	MPSPCLYSITTEVISMKIGIVGLGRVGSSTAFALLMKGLAREMVLIDVDRKRAEGDAL	DL					
TnpLDH	-----	MKIGIVGLGRVGSSTAFALLMKGFAREMVLIDVDRKRAEGDAL	DL				
TRQ7LDH	-----	MKIGIVGLGRVGSSTAFALLMKGLAREMVLIDVDRKRAEGDAL	DL				
PthLDH	YHSTPFLKRCNITAGNPHDILNSDFVIIITAGASQSAGESRSLSTKRNVKIIRQIAAQIKK						
TmLDH	IHGTPFTRRANIYAGDYADLKGSDVVIVAAGVPQKPGETRLQLLGRNARVMKEIARNVSK						
TnLDH	IHGTPFTRRANIYAGDYADLKGSDVVIVAAGVPQKPGETRLQLLGRNARVMKEIARNVSK						
TnpLDH	IHGTPFTRRANIYAGDYADLKGSDVVIVAAGVPQKPGETRLQLLGRNARVMKEIARNVSK						
TRQ7LDH	IHGTPFTRRANIYAGDYADLKGSDVVIVAAGVPQKPGETRLQLLGRNARVMKEIARNVSK						
PthLDH	YSPDAIVINVSNPVDVLSYVLWKETKFNWRKVIIGTGTILDARFRALVAKQCGVSPMSVH						
TmLDH	YAPDSIVIVVINFVDVLTYPFLKESGMDPRKVFSGSGTVLDTARLRTLIAQHCGFSPRSVH						
TnLDH	YAPDSIVIVVINFVDVLTYPFLKESGMDRRKVFSGSGTVLDTARLRTLIAQHCGFSPRSVH						
TnpLDH	YAPDSIVIVVINFVDVLTYPFLKESGMDPRKVFSGSGTVLDTARLRTLIAQHCGFSPRSVH						
TRQ7LDH	YAPDSIVIVVINFVDVLTYPFLKESGMDRRKVFSGSGTVLDTARLRTLIAQHCGFSPRSVH						
PthLDH	AYIIGEHGDSELLVWSNATIGGVSIKRFCQFCTNKNCTPLESLFEQTKNAAYEIIERKGA						
TmLDH	VYVIGEHGDSEVPVWSGAMIGGIPLQNMCIQKCDKILENFAEKTKRAAYEIIERKGA						
TnLDH	VYVIGEHGDSEVPVWSGAMIGGIPLQNMCIQKCDKILENFAEKTKRAAYEIIERKGA						
TnpLDH	VYVIGEHGDSEVPVWSGAMIGGIPLQNMCIQKCDKILENFAEKTKRAAYEIIERKGA						
TRQ7LDH	VYVIGEHGDSEVPVWSGAMIGGIPLQNMCIQKCDKILENFAEKTKRAAYEIIERKGA						
PthLDH	TNLAIGTATAALVESIYRDEKRVWTVSVFQDN-----LYIGFPAILGRKNGVEKLVVVKL						
TmLDH	THYAIALAVADIVESIFFDEKRVLTLSVYLEDYLGVDLCISVPVTLGRHGVERILELNL						
TnLDH	THYAIALAVTDIVETIFFDEKRVLTLSVYLEDYLGVDLCISVPAVLGRHGVERILKLEL						
TnpLDH	THYAIALAVADIVESIFFDEKRVLTLSVYLEDYLGVDLCISVPVTLGRHGVERILELNL						
TRQ7LDH	THYAIALAVTDIVETIFFDEKRVLTLSVYLEDYLGVDLCISVPAVLGRHGVERILKLEL						
PthLDH	NSVEKEAFERSKEVIKKYIKEGEKSEREESSN-						
TmLDH	NEEELEAFRKSASILKNAINETAENKHQNTSG						
TnLDH	SEEEKAPRESAKILKSAIEEILAEENK-----						
TnpLDH	NEEELEAFRKSASILKNAINETAENKHQNTSG						
TRQ7LDH	SEEEKAPRESAKILKSAIEEILAEENKENT---						