Supplemental information 4 List of reactions for the synthesis of PHA

Protein name	Reactions	Gene name
For fatty acid chain long than 14	FA + (y) FAD + (y) NAD + (y) COA -> HDDACOA + (y) FADH2 + (y) NADH + (y) ACCOA	
(y) = number of cycles		
	HTDACOA + FAD -> HTDECOA + FADH2	*fadE*
	HTDECOA -> SHTDHACOA	*fadBX1*
Enoyl-CoA Hydratase	HTDECOA -> RHTDHACOA	*phaJ*
	SHTDHACOA -> RHTDHACOA	*epi*
	SHTDHACOA + NAD -> HTDOCOA + NADH	*fadBX2*
3-Ketoacyl-CoA reductase	HTDOCOA -> RHTDHACOA	*fabG*
	COA + HTDOCOA -> HDDACOA + ACCOA	*fadA*
	HDDACOA + FAD -> HDDECOA + FADH2	*fadE*
	HDDECOA -> SHDDHACOA	*fadBX1*
	HDDECOA -> RHDDHACOA	*phaJ*
	SHDDHACOA -> RHDDHACOA	*epi*
	SHDDHACOA + NAD -> HDDOCOA + NADH	*fadBX2*
	HDDOCOA -> RHDDHACOA	*fabG*
	COA + HDDOCOA -> HDACOA + ACCOA	*fadA*
	HDACOA + FAD -> HDECOA + FADH2	*fadE*
	HDECOA -> SHDHACOA	*fadBX1*
	HDECOA -> RHDHACOA	*phaJ*
	SHDHACOA -> RHDHACOA	*epi*
	SHDHACOA + NAD -> HDOCOA + NADH	*fadBX2*
	HDOCOA -> RHDHACOA	*fabG*
	COA + HDOCOA -> HOACOA + ACCOA	*fadA*
	HOACOA + FAD -> HOECOA + FADH2	*fadE*
	HOECOA -> SHOHACOA	*fadBX1*
	HOECOA -> RHOHACOA	*phaJ*
	SHOHACOA -> RHOHACOA	*epi*
	SHOHACOA + NAD -> HOOCOA + NADH	*fadBX2*
	HOOCOA -> RHOHACOA	*fabG*
	COA + HOOCOA -> HHXACOA + ACCOA	*fadA*
	HHXACOA + FAD -> HHXECOA + FADH2	*fadE*
	HHXECOA -> SHHXHACOA	*fadBX1*
	HHXECOA -> RHHXHACOA	*phaJ*
	SHHXHACOA -> RHHXHACOA	*epi*
	SHHXHACOA + NAD -> HHXOCOA + NADH	*fadBX2*
	HHXOCOA -> RHHXHACOA	*fabG*
	COA + HHXOCOA -> HBACOA + ACCOA	*fadA*

	HBACOA + FAD -> HBECOA + FADH2	*fadE*
	HBECOA -> SHBHACOA	*fadBX1*
	HBECOA -> RHBHACOA	*phaJ*
	SHBHACOA -> RHBHACOA	*epi*
	SHBHACOA + NAD -> HBOCOA + NADH	*fadBX2*
	HBOCOA -> RHBHACOA	*fabG*
	COA + HBOCOA -> 2 ACCOA	*fadA*
PHA Synthase	RHTDHACOA <-> PHTD + COA	
PHA Synthase	RHDDHACOA <-> PHDD + COA	
PHA Synthase	RHDHACOA <-> PHD + COA	
PHA Synthase	RHOHACOA <-> PHO + COA	
PHA Synthase	RHHXHACOA <-> PHHX + COA	
PHA Synthase	RHBHACOA <-> PHB + COA	
PHA Synthase	C040ACP -> PHB + ACP	
PHA Synthase	C060ACP -> PHHX + ACP	
PHA Synthase	C080ACP -> PHO + ACP	
PHA Synthase	C100ACP -> PHD + ACP	
PHA Synthase	C120ACP -> PHDD + ACP	
PHA Synthase	C140ACP -> PHTD + ACP	
Fatty acid Transporter	C040xt -> C040	
Fatty acid Transporter	C060xt -> C060	
Fatty acid Transporter	C080xt -> C080	
Fatty acid Transporter	C100xt -> C100	
Fatty acid Transporter	C120xt -> C120	
Fatty acid Transporter	C140xt -> C140	
	ATP + C140 + COA -> AMP + PPI + HTDACOA	*fadD*
	ATP + C120 + COA -> AMP + PPI + HDDACOA	*fadD*
	ATP + C100 + COA -> AMP + PPI + HDACOA	*fadD*
	ATP + C080 + COA -> AMP + PPI + HOACOA	*fadD*
	ATP + C060 + COA -> AMP + PPI + HHXACOA	*fadD*
	ATP + C040 + COA -> AMP + PPI + HBACOA	*fadD*
XXX coefficient dependent on growth condition	XXX PHTD + XXX PHDD + XXX PHD + XXX PHO + XXX PHHX <-> XXX PHA	
Glucose	0.016 PHTDU + 0.088 PHDDU + 0.077 PHDD + 0.743 PHD + 0.069 PHO <-> 0.882 PHA	
Fructose	0.046 PHTDU + 0.085 PHDDU + 0.003 PHTD + 0.057 PHDD + 0.708 PHD + 0.126 PHO + 0.005 PHHX -> 0.245 PHA	
Oleic Acid	0.155 PHTD + 0.124 PHDD + 0.322 PHD + 0.335 PHO + 0.044 PHHX <-> 0.372 PHA	
Glycerol	0.008 PHTDU + 0.086 PHDDU + 0.001 PHTD + 0.038 PHDD + 0.636 PHD + 0.214 PHO + 0.017 PHHX -> 0.22 PHA	
Decanoate	0.423 PHD + 0.523 PHO + 0.053 PHHX -> 0.276 PHA	
	PHA <-> PHAxt	