Figure 1A

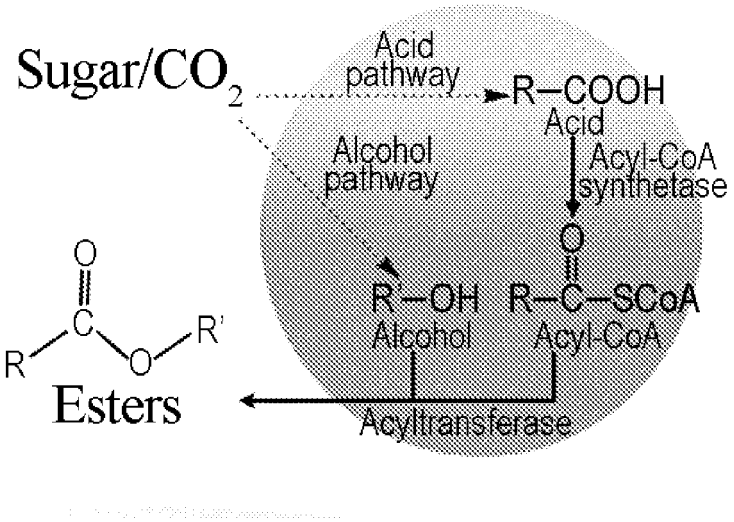


Figure 1B

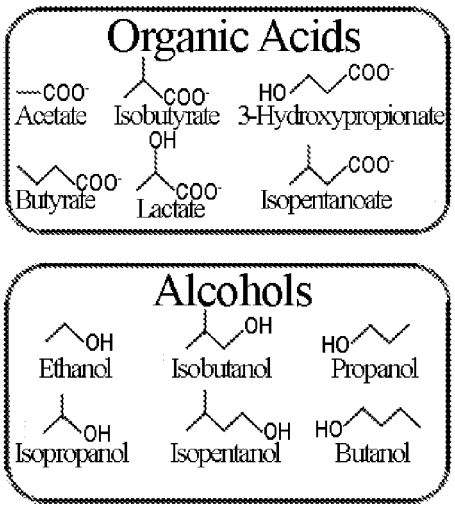


Figure 1C

Ester Approach to chemicals of fuels

* Neutral molecules (do not need base during fermentation)
* Low toxicity (high titer is achievable)
* Low water solubility (purification requires minimal energy input)

Properties of medium-chain ester fuels

* High energy density (compatible with existing infrastructure)
* High carbon yield and production rate (competitive against oil)
* Low heat of vaporization (better cold starting)
* Recycle CO_2 (carbon neutral)

Figure 2

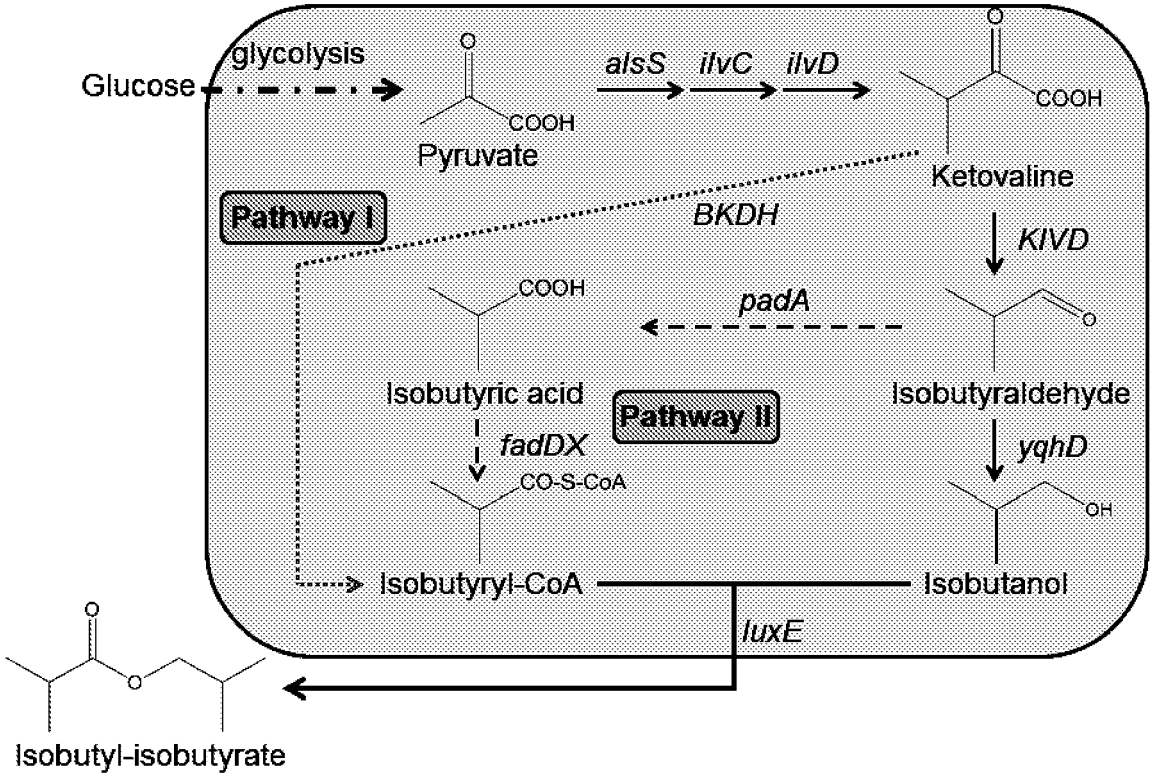


Figure 3A

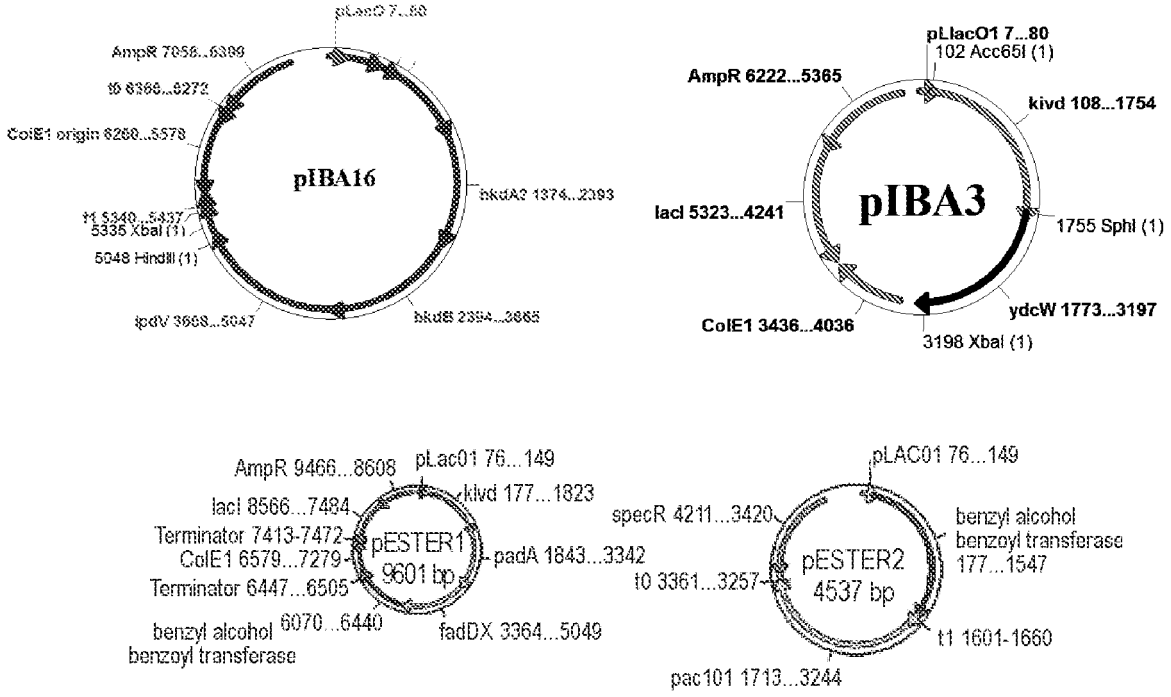


Figure 3B

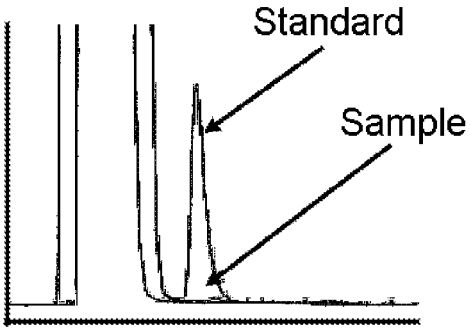


Figure 4

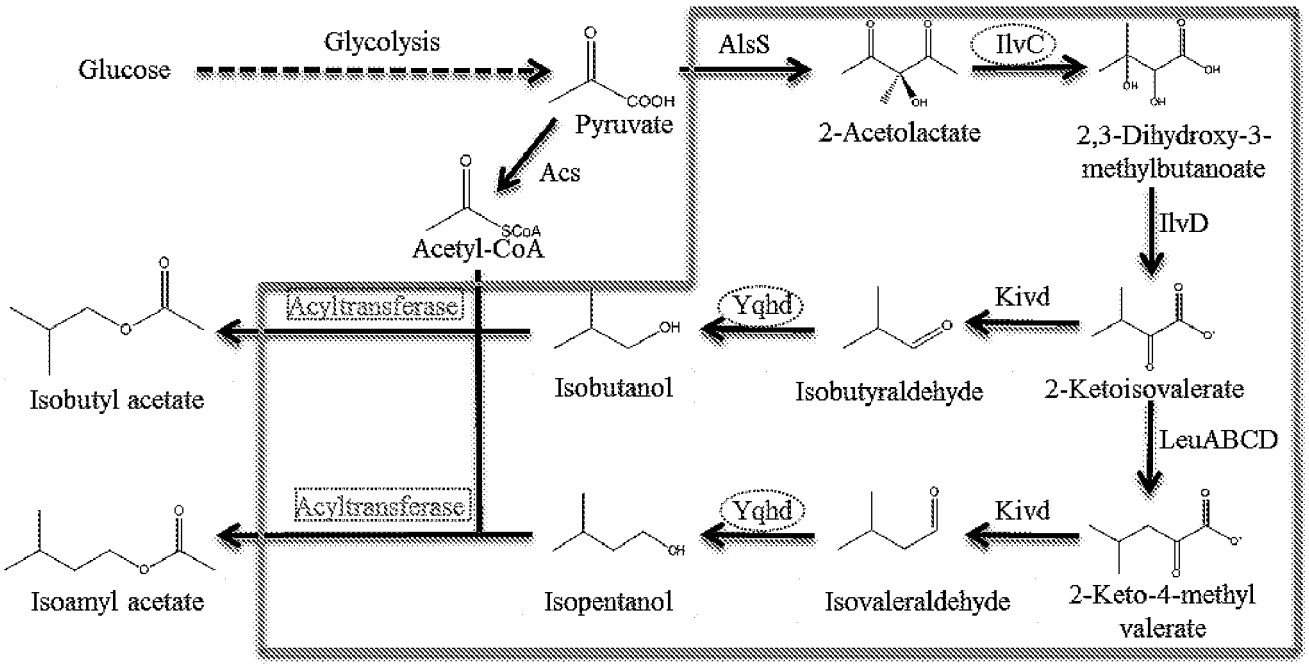


Figure 5A

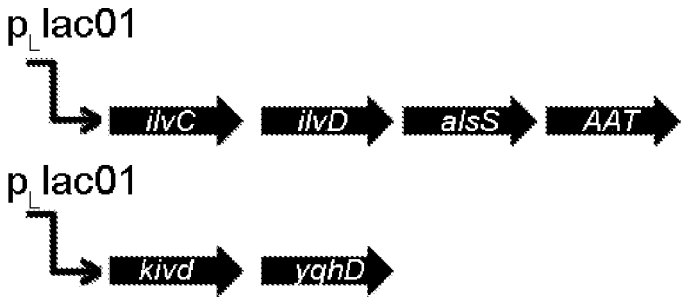


Figure 5B

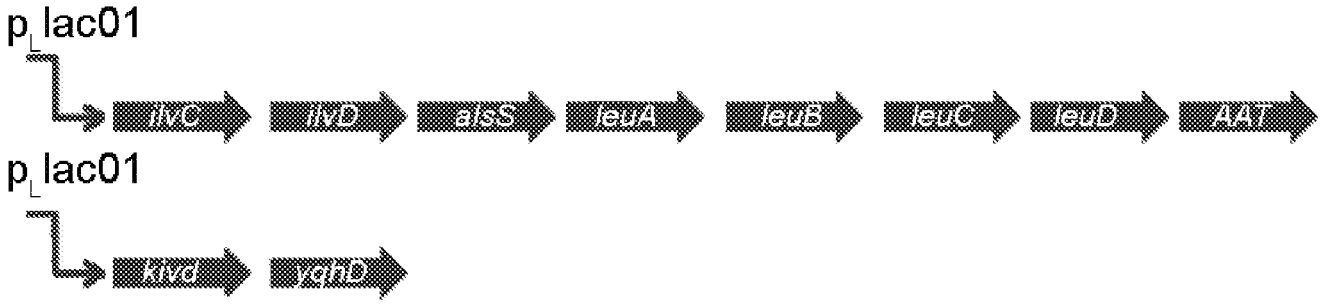


Figure 6A

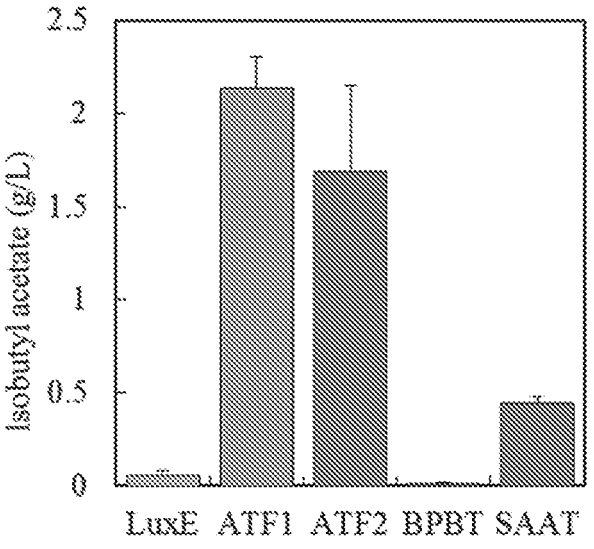


Figure 6B

