

### Electronic Supplementary Information:

Table S1: Degree of purity and vendor of various reagents used

| Reagent used            | Purity                               | Vendor                     |
|-------------------------|--------------------------------------|----------------------------|
| Propanoic acid          | >99.5%                               | Sigma-Aldrich              |
| Acetic acid             | 99.99%                               | Sigma-Aldrich              |
| Succinic acid           | 99.5%                                | Fisher Scientific          |
| Malonic acid            | 99%                                  | Sigma-Aldrich              |
| Glycolic acid           | 99%                                  | MP biomedical              |
| Lactic acid             | 98%                                  | Sigma-Aldrich              |
| Tartronic acid          | 99%                                  | Acros                      |
| Tartaric acid           | >99%                                 | Fisher Scientific          |
| Glyceric acid           | 40% in water                         | Tokyo Chemicals            |
| Gluconic acid           | 45-50% in water                      | Sigma-Aldrich              |
| Xylonic acid            | N.A.                                 | Toronto Research Chemicals |
| Methanol                | 99.8%                                | Sigma-Aldrich              |
| Butan-2-ol              | 99.5%                                | Sigma-Aldrich              |
| Butane-2,3-diol         | 98% (mixt. of racemic and meso form) | Sigma-Aldrich              |
| Pentane-2,4-diol        | 98%                                  | Sigma-Aldrich              |
| Acetone                 | >99.9%                               | Sigma-Aldrich              |
| Pentane-2,4-dione (cac) | >99%                                 | Sigma-Aldrich              |
| Mesityl oxide           | 90%                                  | Sigma-Aldrich              |
| Pentan-3-one            | 99%                                  | Sigma-Aldrich              |