

Aug 16, 2019

SOAP-denovo-trans assembly

 [Bioinformatics](#)

 In 1 collection

DOI

<https://dx.doi.org/10.17504/protocols.io.38pgrvn>

Eric J. Carpenter¹, Naim Matasci^{2,3}, Shuangxiu Wu⁴, Jing Sun⁴, Jun Yu⁴, Fabio Rocha Jimenez Vieira⁵, Chris Bowler⁵, Richard G. Dorrell⁵, Matt Gitzendanner⁶, Ling Li⁷, Wensi Du⁷, Kristian Ullrich⁸, Michael S. Barker⁹, James H. Leebens-Mack¹⁰, Gane Ka-Shu Wong¹¹

¹Department of Biological Sciences, University of Alberta, Edmonton, Alberta, T6G 2E9, Canada.;

²CyVerse, University of Arizona, Arizona, U.S.A.;

³Current address: Lawrence J. Ellison Institute for Transformative Medicine, University of Southern California, Los Angeles, CA 90033, U.S.A.;

⁴CAS Key Laboratory of Genome Sciences and Information, Beijing, Institute of Genomics, Chinese Academy of Sciences, Beijing 100101, People's Republic of China.;

⁵École Normale Supérieure, Paris.;

⁶Department of Biology, University of Florida, Gainesville, Florida 32611, USA.;

⁷BGI-Shenzhen, Beishan Industrial Zone, Yantian District, Shenzhen 518083, People's Republic of China.;

⁸Department of Evolutionary Genetics, Max Planck Institute for Evolutionary Biology, Plön, Germany.;

⁹Department of Ecology & Evolutionary Biology, University of Arizona, Tucson, AZ 85721 USA.;

¹⁰Department of Plant Biology, University of Georgia, Athens, GA 30602, USA.;

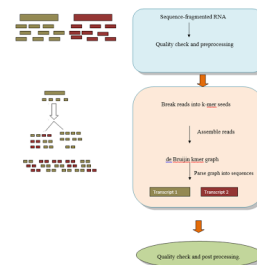
¹¹Department of Biological Sciences, University of Alberta, Edmonton, Alberta, T6G 2E9, Canada. BGI-Shenzhen, Beishan Industrial Zone, Yantian District, Shenzhen 518083, People's Republic of China. Department of Medicine, University of Alberta, Edmonton, Alberta, T6G 2E1, Canada.

GigaScience Press

BGI



Haorong Lu



Create & collaborate more with a free account

Edit and publish protocols, collaborate in communities, share insights through comments, and track progress with run records.

Create free account

OPEN  ACCESS



DOI: <https://dx.doi.org/10.17504/protocols.io.38pgrvn>

Protocol Citation: Eric J. Carpenter, Naim Matasci, Shuangxiu Wu, Jing Sun, Jun Yu, Fabio Rocha Jimenez Vieira, Chris Bowler, Richard G. Dorrell, Matt Gitzendanner, Ling Li, Wensi Du, Kristian Ullrich, Michael S. Barker, James H. Leebens-Mack, Gane Ka-Shu Wong 2019. SOAP-denovo-trans assembly. **protocols.io** <https://dx.doi.org/10.17504/protocols.io.38pgrvn>

Manuscript citation:

<https://academic.oup.com/bioinformatics/article/30/12/1660/380938>

License: This is an open access protocol distributed under the terms of the **Creative Commons Attribution License**, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

Protocol status: Working

We use this protocol and it's working

Created: June 15, 2019

Last Modified: August 16, 2019

Protocol Integer ID: 24559

Keywords: SOAP-denovo-trans assembly, plant transcriptomes for the 1kp project, plant transcriptome, trans assembly soap, trans assembly protocol, denovo

Abstract

SOAP-denovo-trans assembly protocol used to assemble plant transcriptomes for the 1KP project.

Materials

STEP MATERIALS

- ⊗ DNaseI **NEB**
- ⊗ Dynabeads mRNA purification kit **Life Technologies**
- ⊗ fragmentation buffer **Life Technologies**
- ⊗ SuperScript II reverse transcription kit **Life Technologies**
- ⊗ RNase H **Life Technologies**
- ⊗ DNA polymerase **Enzymatics**
- ⊗ QIAquick PCR purification kit **Qiagen**
- ⊗ Agencourt AMPure beads **Beckman Coulter**
- ⊗ T4 DNA polymerase and T4 polynucleotide kinase **Enzymatics**
- ⊗ Klenow (3' to 5' exo-) **Enzymatics**
- ⊗ dATP **GE Healthcare**
- ⊗ Phusion DNA polymerase **NEB**



- 1 SOAPdenovo2 based DBG construction and Trinity based low frequency k-mer removal.
- 2 Map reads to the contigs and build linkages.
 - a) Utilizing single-end read information
 - b) Utilizing paired-end read information
 - c) Merge the linkages
- 3 Remove erroneous and redundant linkages
 - a) Manage ambiguous contigs
 - b) Linearize contigs into scaffolds
- 4 Divide graph into sub-graph. Oases based graph traversal.
- 5 Gap closure and output the transcripts.