

I-Impute: a self-consistent method to impute  
single cell RNA sequencing data

Additional file 1

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November 18, 2019

**Contents**

<b>1</b>	<b>Supplementary Figures</b>	<b>2</b>
<b>2</b>	<b>Supplementary Tables</b>	<b>3</b>

# 1 Supplementary Figures

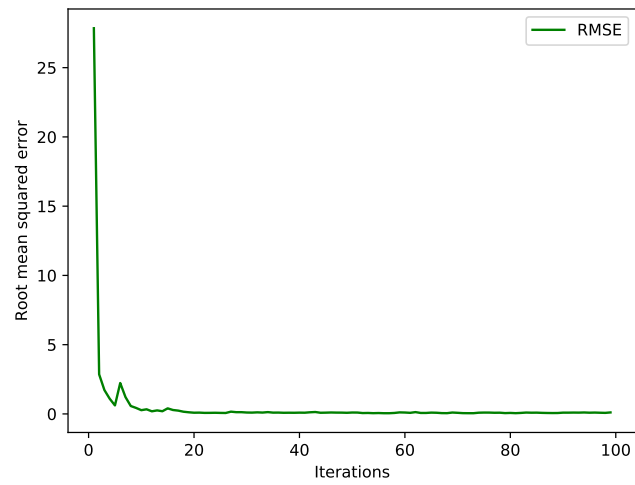


Figure S1: Iteration analysis based on synthetic data (88.45% dropout). The root mean squared error (RMSE) is stable below 0.1.

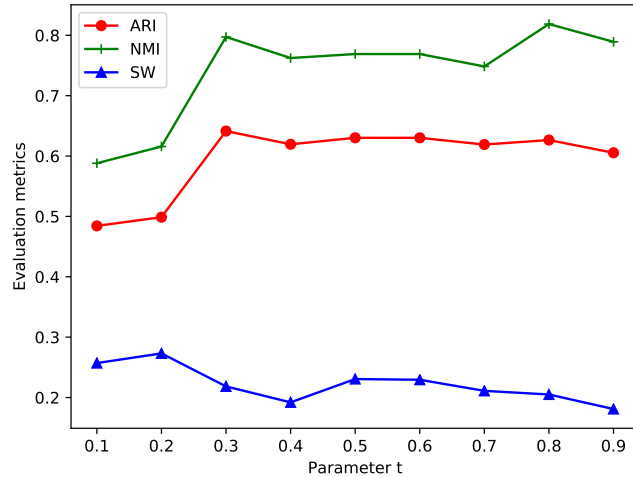


Figure S2: Clustering results of imputed data based on mouse Bladder cells dataset when different values of parameter  $t$  are used in I-Impute. This result suggests that the value of parameter  $t$  should not be too small. The default value of parameter  $t$  is 0.5.

## 2 Supplementary Tables

Table S1: Imputation performance on synthetic data (88.45% dropout)

Method	ARI	NMI	SW
Raw	0.5161	0.5787	0.2627
88.45% Dropout	0.4363	0.5467	0.0862
SAVER	0.7473	0.7145	0.1075
scImpute	0.0531	0.0989	0.0742
C-Impute	0.6860	0.7512	0.1705
I-Impute	<b>0.8721</b>	<b>0.8521</b>	<b>0.2429</b>

Table S2: Imputation performance on synthetic data (63.29% dropout)

Method	ARI	NMI	SW
Raw	0.5161	0.5787	0.2627
63.29% Dropout	0.3105	0.4115	0.1910
SAVER	0.9784	0.9700	0.2739
scImpute	0.2033	0.3904	0.2054
C-Impute	0.9644	0.9509	0.2496
I-Impute	<b>1.0</b>	<b>1.0</b>	<b>0.3908</b>

Table S3: Imputation performance on synthetic data (45.16% dropout)

Method	ARI	NMI	SW
Raw	0.5161	0.5787	0.2627
45.16% Dropout	0.6000	0.6306	0.2137
SAVER	0.9801	0.9710	0.3292
scImpute	0.3596	0.4962	0.2365
C-Impute	0.4727	0.5551	0.2566
I-Impute	<b>0.9801</b>	<b>0.9710</b>	<b>0.4123</b>

Table S4: Pearson correlation result on synthetic data

Method	88.45% Dropout	63.29% Dropout	45.16% Dropout
SAVER	0.5836	0.7915	0.8764
scImpute	0.6451	0.8582	0.9263
C-Impute	0.7611	0.8873	0.9305
I-Impute	<b>0.7812</b>	<b>0.8993</b>	<b>0.9357</b>

Table S5: Imputation performance on mouse Bladder cells data

Method	ARI	NMI	SW
Raw	0.1937	0.4500	0.0737
SAVER	0.5253	0.7085	0.0621
scImpute	0.1937	0.4500	0.0686
C-Impute	0.1664	0.4317	0.0741
I-Impute	<b>0.6054</b>	<b>0.7892</b>	<b>0.1758</b>

Table S6: Imputation performance on mouse ES cells data

Method	ARI	NMI	SW
Raw	0.2410	0.5160	0.0353
SAVER	0.6920	0.7329	0.2235
scImpute	0.3574	0.5258	0.0418
C-Impute	0.2410	0.5160	0.0411
I-Impute	<b>0.7047</b>	<b>0.7444</b>	<b>0.2275</b>

Table S7: Imputation performance on mouse Aortic Leukocyte cells data

Method	ARI	NMI	SW
Raw	0.3463	0.6352	0.0290
SAVER	0.3605	0.6837	<b>0.1075</b>
scImpute	0.3377	0.6237	0.0358
C-Impute	0.3427	0.6398	0.0206
I-Impute	<b>0.5220</b>	<b>0.7728</b>	0.0711