

## Additional file 2

### "GRISOTTO: A greedy approach to improve combinatorial algorithms for motif discovery with prior knowledge"

Alexandra M. Carvalho and Arlindo L. Oliveira

Herein it is presented detailed results achieved by PRIORITY and GRISOTTO with priors discussed in the paper. A '1' indicates that the top scoring motif found by the respective algorithm and prior matches literature consensus, whereas '0' indicates otherwise. Shorthand designations match the ones found in the paper.

|     |              | PRIORITY |    |    | GRISOTTO |    |    |     |
|-----|--------------|----------|----|----|----------|----|----|-----|
| No. | Sequence-set | DC       | DE | DN | DC       | DE | DN | CDP |
| 1   | ABF1_YPD     | 1        | 1  | 1  | 1        | 1  | 1  | 1   |
| 2   | ACE2_YPD     | 1        | 0  | 0  | 0        | 0  | 0  | 1   |
| 3   | ADR1_HEAT    | 0        | 0  | 0  | 0        | 0  | 0  | 0   |
| 4   | ADR1_YPD     | 0        | 0  | 0  | 0        | 0  | 0  | 0   |
| 5   | AFT2_H2O2Hi  | 1        | 0  | 1  | 1        | 1  | 1  | 0   |
| 6   | AFT2_H2O2Lo  | 1        | 1  | 1  | 1        | 1  | 1  | 1   |
| 7   | AFT2_YPD     | 0        | 0  | 0  | 0        | 0  | 0  | 0   |
| 8   | ARR1_YPD     | 0        | 0  | 0  | 0        | 0  | 0  | 0   |
| 9   | ASH1_BUT14   | 0        | 0  | 0  | 0        | 0  | 1  | 0   |
| 10  | AZF1_YPD     | 0        | 0  | 0  | 1        | 0  | 0  | 0   |
| 11  | BAS1_SM      | 1        | 1  | 1  | 1        | 1  | 1  | 1   |
| 12  | BAS1_YPD     | 1        | 1  | 1  | 1        | 1  | 1  | 1   |
| 13  | CAD1_SM      | 1        | 1  | 1  | 1        | 1  | 1  | 1   |
| 14  | CAD1_YPD     | 1        | 1  | 1  | 1        | 0  | 0  | 1   |
| 15  | CBF1_SM      | 1        | 1  | 1  | 1        | 1  | 1  | 1   |
| 16  | CBF1_YPD     | 1        | 1  | 1  | 1        | 1  | 1  | 1   |
| 17  | CIN5_H2O2Hi  | 1        | 1  | 1  | 1        | 1  | 0  | 1   |
| 18  | CIN5_H2O2Lo  | 1        | 1  | 1  | 1        | 0  | 0  | 1   |
| 19  | CIN5_YPD     | 1        | 1  | 1  | 1        | 0  | 1  | 1   |
| 20  | DAL80_RAPA   | 0        | 0  | 0  | 0        | 1  | 0  | 0   |
| 21  | DAL80_YPD    | 1        | 0  | 0  | 1        | 1  | 0  | 0   |
| 22  | DAL81_RAPA   | 0        | 0  | 0  | 0        | 0  | 0  | 0   |
| 23  | DAL81_YPD    | 0        | 0  | 0  | 0        | 0  | 1  | 0   |
| 24  | DAL82_RAPA   | 1        | 0  | 1  | 0        | 0  | 0  | 1   |
| 25  | DAL82_SM     | 1        | 0  | 1  | 1        | 1  | 1  | 1   |
| 26  | DAL82_YPD    | 0        | 0  | 0  | 1        | 0  | 1  | 1   |
| 27  | FKH1_YPD     | 1        | 1  | 1  | 1        | 1  | 1  | 1   |
| 28  | FKH2_H2O2Hi  | 1        | 1  | 1  | 1        | 1  | 1  | 1   |

|    |             |   |   |   |   |   |   |   |   |
|----|-------------|---|---|---|---|---|---|---|---|
| 29 | FKH2_H2O2Lo | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 30 | FKH2_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 31 | GAL4_GAL    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 32 | GAL4_RAFF   | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 33 | GAL4_YPD    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 34 | GAT1_RAPA   | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 |
| 35 | GAT1_SM     | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 36 | GCN4_RAPA   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 37 | GCN4_SM     | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 38 | GCN4_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 39 | GCR1_YPD    | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 40 | GLN3_RAPA   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 41 | GLN3_SM     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 42 | GLN3_YPD    | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 43 | GZF3_H2O2Hi | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 44 | GZF3_RAPA   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45 | HAC1_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 46 | HAP1_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 47 | HAP2_RAPA   | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 48 | HAP2_YPD    | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 49 | HAP3_YPD    | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 50 | HAP4_H2O2Lo | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |
| 51 | HAP4_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 52 | HAP5_SM     | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 53 | HAP5_YPD    | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| 54 | HSF1_H2O2Hi | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 55 | HSF1_H2O2Lo | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 56 | INO2_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 57 | INO4_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 58 | LEU3_SM     | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |
| 59 | LEU3_YPD    | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 60 | MAC1_H2O2Hi | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 61 | MAC1_YPD    | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 62 | MBP1_H2O2Hi | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 63 | MBP1_H2O2Lo | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 64 | MBP1_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 65 | MCM1_Alpha  | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 66 | MCM1_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 67 | MET31_SM    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 68 | MET31_YPD   | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 69 | MET32_SM    | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |
| 70 | MET32_YPD   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

|     |               |   |   |   |   |   |   |   |   |
|-----|---------------|---|---|---|---|---|---|---|---|
| 71  | MOT3_SM       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 72  | MOT3_YPD      | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 73  | MSN2_Acid     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 74  | MSN2_H2O2Hi   | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 75  | MSN2_H2O2Lo   | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 76  | MSN2_RAPA     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 77  | MSN4_Acid     | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |
| 78  | MSN4_H2O2Hi   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 79  | MSN4_H2O2Lo   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80  | MSN4_RAPA     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 81  | MSN4_YPD      | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 82  | NRG1_H2O2Hi   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 83  | NRG1_H2O2Lo   | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 84  | NRG1_YPD      | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 85  | PDR1_H2O2Lo   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 86  | PDR1_YPD      | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 87  | PDR3_YPD      | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 88  | PHO4_Pi-      | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 89  | PHO4_YPD      | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 90  | PUT3_SM       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 91  | PUT3_YPD      | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 92  | RAP1_YPD      | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 93  | RCS1_H2O2Hi   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 94  | RCS1_H2O2Lo   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 95  | RCS1_SM       | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 96  | RCS1_YPD      | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| 97  | REB1_H2O2Hi   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 98  | REB1_H2O2Lo   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 99  | REB1_YPD      | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 100 | RIM101_H2O2Hi | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 101 | RLM1_YPD      | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 102 | ROX1_H2O2Hi   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 103 | ROX1_H2O2Lo   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 104 | ROX1_YPD      | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 105 | RPH1_H2O2Hi   | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 106 | RPH1_SM       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 107 | RPH1_YPD      | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 108 | RPN4_H2O2Lo   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 109 | RPN4_YPD      | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 110 | RTG1_RAPA     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 111 | RTG1_SM       | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 112 | RTG3_H2O2Hi   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

|     |             |   |   |   |   |   |   |   |   |
|-----|-------------|---|---|---|---|---|---|---|---|
| 113 | RTG3_RAPA   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 114 | RTG3_SM     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 115 | RTG3_YPD    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 116 | SIP4_SM     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 117 | SIP4_YPD    | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| 118 | SKN7_H2O2Hi | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 119 | SKN7_H2O2Lo | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| 120 | SKN7_YPD    | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 121 | SKO1_YPD    | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 |
| 122 | SMP1_YPD    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 123 | STB5_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 124 | STE12_Alpha | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 125 | STE12_BUT14 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 126 | STE12_BUT90 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 127 | STE12_YPD   | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 128 | STP1_SM     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 129 | STP1_YPD    | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| 130 | SUM1_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 131 | SUT1_YPD    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 132 | SWI4_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 133 | SWI5_YPD    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 134 | SWI6_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 135 | TEC1_Alpha  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 136 | TEC1_BUT14  | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |
| 137 | TEC1_YPD    | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 |
| 138 | TYE7_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 139 | UGA3_RAPA   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 140 | UGA3_SM     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 141 | UME6_H2O2Hi | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 142 | UME6_YPD    | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 143 | XBP1_H2O2Lo | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 144 | YAP1_H2O2Lo | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 145 | YAP1_YPD    | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |
| 146 | YAP3_YPD    | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 147 | YAP5_H2O2Hi | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| 148 | YAP5_YPD    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 149 | YAP6_H2O2Hi | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 150 | YAP6_H2O2Lo | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 151 | YAP6_YPD    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 152 | YAP7_H2O2Hi | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 153 | YAP7_H2O2Lo | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 154 | YHP1_YPD    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

|       |          |    |    |    |           |           |           |           |
|-------|----------|----|----|----|-----------|-----------|-----------|-----------|
| 155   | YOX1_YPD | 0  | 1  | 0  | 1         | 1         | 1         | 1         |
| 156   | ZAP1_YPD | 0  | 1  | 0  | 1         | 1         | 0         | 1         |
| Total |          | 78 | 70 | 70 | <b>83</b> | <b>80</b> | <b>77</b> | <b>93</b> |

  

|                                                                        |  |  |  |  |  |  |  |            |
|------------------------------------------------------------------------|--|--|--|--|--|--|--|------------|
| Total number of sequence-sets                                          |  |  |  |  |  |  |  | <b>156</b> |
| Total number of motifs found by PRIORITY+GRISOTTO using various priors |  |  |  |  |  |  |  | <b>113</b> |
| Motifs never found with any prior                                      |  |  |  |  |  |  |  | <b>43</b>  |