

SUPPLEMENTARY MATERIAL

Supplementary table 1
Fitted Bayesian logistic regression model for response (i.e., CR/CRi).

| Variable | Mean | SD | 95% Credible Interval | Prob (beneficial) |
|---|--------|-------|-----------------------|-------------------|
| Intercept | -1.699 | 0.157 | (-1.990, -1.381) | - |
| Group 1: decitabine+GO vs. historical | 0.575 | 0.574 | (-0.620, 1.703) | 0.854 |
| Group 2: decitabine+GO vs. historical | 0.661 | 0.855 | (-1.071, 2.297) | 0.779 |
| Group 3 (AML): decitabine+GO vs. historical | 0.487 | 0.374 | (-0.262, 1.194) | 0.905 |
| Group 3 (MDS): decitabine+GO vs. historical | -0.391 | 0.546 | (-1.535, 0.675) | 0.238 |
| Group 4: decitabine+GO vs. historical | 0.576 | 0.522 | (-0.496, 1.601) | 0.860 |
| Age | -0.008 | 0.005 | (-0.017, 0.002) | 0.055 |
| log(WBC) | 0.006 | 0.083 | (-0.157, 0.161) | 0.522 |
| log(PLT) | 0.210 | 0.076 | (0.071, 0.372) | 0.996 |
| BM blast | -0.010 | 0.004 | (-0.017, -0.002) | 0.004 |
| Karyotype = Poor (vs. Others) | -0.717 | 0.229 | (-1.188, -0.296) | <0.001 |
| PS = 2, 3 (vs. 0, 1) | -0.497 | 0.311 | (-1.120, 0.130) | 0.058 |

Abbreviations: decitabine+GO, decitabine and gemtuzumab ozogamicin; vs., versus; WBC, white blood cell count; PLT, platelet count; PS, performance status; Prob, probability, CR, complete remission, CRi, complete remission with incomplete count recovery

*With regard to the decitabine+GO treatment effect relative to historical treatment, the posterior probability of achieving a higher CR rate is 84.6%, 78.8%, 71.5% and 84.7%, respectively, in Groups 1, 2, 3, and 4. Baseline patient characteristics such as age, WBC, PLT, BM blast, cytogenetics and PS were adjusted in the fitted model, which suggests that younger age, higher PLT, lower BM blast counts, non-poor cytogenetics, and good PS were associated with a higher chance of achieving CR/CRi, with a posterior probability of 93.3%, 99.5%, 99.7%, 100% and 95.0% respectively.

Supplementary table 2
Fitted Bayesian-Weibull regression model for overall survival.

| Variable | Mean | SD | 95% Credible Interval | Prob (harmful) |
|---|--------|-------|-----------------------|----------------|
| Intercept | -2.761 | 0.302 | (-3.364, -2.194) | - |
| Group 1: decitabine+GO vs. historical | -0.356 | 0.225 | (-0.799, 0.087) | 0.051 |
| Group 2: decitabine+GO vs. historical | -0.286 | 0.659 | (-1.716, 0.864) | 0.357 |
| Group 3 (AML): decitabine+GO vs. historical | 0.206 | 0.227 | (-0.234, 0.664) | 0.822 |
| Group 3 (MDS): decitabine+GO vs. historical | 0.540 | 0.307 | (-0.078, 1.227) | 0.950 |
| Group 4: decitabine+GO vs. historical | 0.378 | 0.387 | (-0.383, 1.122) | 0.834 |
| Age | 0.015 | 0.003 | (0.009, 0.021) | 1.000 |
| log(WBC) | 0.118 | 0.037 | (0.043, 0.188) | 0.999 |
| log(PLT) | -0.230 | 0.043 | (-0.321, -0.150) | <0.001 |
| BM blast | 0.007 | 0.002 | (0.003, 0.010) | 1.000 |
| Karyotype = Poor (vs. Others) | 0.709 | 0.096 | (0.523, 0.895) | 1.000 |
| PS = 2, 3 (vs. 0, 1) | 0.622 | 0.115 | (0.406, 0.857) | 1.000 |
| | | | | |
| r* | 0.992 | 0.030 | (0.933, 1.051) | |

*Shape parameter for Weibull distribution.

Abbreviations: decitabine+GO, decitabine and gemtuzumab ozogamicin; vs., versus; WBC, white blood cell count; PLT, platelet count; PS, performance status; Prob, probability; OS, overall survival

*With regard to the decitabine+GO treatment effect relative to historical treatment, the posterior probability of having an increased risk of death (i.e., harmful effect) is 4.1%, 34.3%, 98.2% and 84.4%, respectively, in Groups 1, 2, 3, 4. Baseline patient characteristics such as age, WBC, PLT, BM blast, cytogenetics and PS were adjusted in the fitted model, which suggests that older age, high WBC, low PLT, high BM blast counts, poor cytogenetics, and poor PS were associated with an increased risk of death, with a posterior probability of 100%, 99.8%, 100%, 100%, 100%, and 100%, respectively.

Supplementary figure legends:

Supplementary figure 1: In the plot, p denotes the posterior probability of beneficial effect of decitabine in combination with GO vs. historical treatment, and is represented by the area of the shaded region.

Supplementary figure 2: In the plot, p denotes the posterior probability of harmful effect of decitabine in combination with GO vs. historical treatment, and is represented by the area of the shaded region.