

血液骨髓移植團隊

Blood & Marrow

Transplantation



臺北榮民總醫院
Taipei Veterans General Hospital



Indications for bone marrow transplantation

- Allogeneic hematopoietic stem cell transplantation
 - Acute myeloid leukemia, AML
 - Acute lymphoid leukemia, ALL
 - Other hematological malignancies
 - Aplastic anemia, AA
- Autologous hematopoietic stem cell transplantation
 - Multiple myeloma, MM
 - Lymphomas



Procedure

- Allogeneic hematopoietic stem cell transplantation
 - Evaluation of candidates and risk factors for transplantation
 - Donor selection, stem cell harvesting
 - Central venous catheter implantation
 - Conditioning chemotherapy
 - Hematopoietic stem cell transplantation
 - Supportive care till recovery

- Autologous hematopoietic stem cell transplantation
 - Evaluation of candidates and risk factors for transplantation
 - Stem cell mobilization
 - Stem cell harvesting
 - Central venous catheter implantation
 - Conditioning chemotherapy
 - Prophylaxis of acute graft-versus-host disease, GvHD
 - Hematopoietic stem cell transplantation
 - Supportive care till recovery



Bone marrow transplantation unit



Bone marrow transplantation unit



- Positive air pressure isolation room
- HEPA-fitted



Bone marrow transplantation unit



Outstanding performance

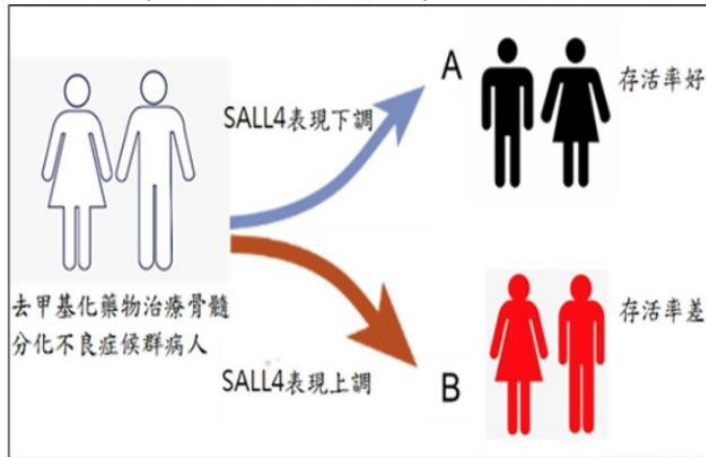
- The first case of allogeneic bone marrow transplantation in Taiwan in 1984
- The first case of peripheral blood hematopoietic stem cell transplantation in Asia
- Haploidentical-donor transplantation
- More than 2,500 transplantation cases
- Transplantation outcomes comparable to top medical centers



Outstanding performance

劉耀中醫師跨國研究找到關鍵「癌基因SALL4」

NEJM (美國新英格蘭期刊) 2022;386:1998-



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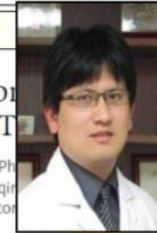
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N Engl J Med 2022;386:1998-2010.
DOI: 10.1056/NEJMoa2119771
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ORIGINAL ARTICLE

Demethylation and Up-Regulation of an Oncogene after Hypomethylating T

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176.079

ABSTRACT

BACKGROUND

Although hypomethylating agents are currently used to treat cancer, whether they can also reactivate and up-regulate oncogenes is not fully elucidated.

METHODS

We examined the effect of hypomethylating agents on *SALL4*, a known oncogene that plays an important role in myelodysplastic syndrome and other cancers. Paired bone marrow samples that were obtained from two cohorts of patients with myelodysplastic syndrome before and after treatment with a hypomethylating agent were used to explore the relationships among changes in *SALL4* expression, treatment response, and clinical outcome. Leukemic cell lines with low or undetectable *SALL4* expression were used to study the relationship between *SALL4* methylation and expression. A locus-specific demethylation technology, CRISPR-DNMT1-interacting RNA (CRISPR-DiR), was used to identify the CpG island that is critical for *SALL4* expression.

RESULTS

SALL4 up-regulation after treatment with hypomethylating agents was observed in 10 of 25 patients (40%) in cohort 1 and in 13 of 43 patients (30%) in cohort 2 and was associated with a worse outcome. Using CRISPR-DiR, we discovered that demethylation of a CpG island within the 5' untranslated region was critical for *SALL4* expression. In cell lines and patients, we confirmed that treatment with a hypomethylating agent led to demethylation of the same CpG region and up-regulation of *SALL4* expression.

CONCLUSIONS

By combining analysis of patient samples with CRISPR-DiR technology, we found that demethylation and up-regulation of an oncogene after treatment with a hypomethylating agent can indeed occur and should be further studied. (Funded by Associazione Italiana per la Ricerca sul Cancro and others.)

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Hospitalization course

