WHAT IS CLAIMED IS:

1. A modified host cell ex vivo, comprising: a transgene encoding a therapeutic factor, wherein said modified host cell is auxotrophic for an auxotrophic factor and capable of expressing the therapeutic factor.

2. The modified host cell of claim 1, wherein the modified host cell is a mammalian cell.

3. The modified host cell of claim 2 or 3, wherein the modified host cell is a human cell.

4. The modified host cell of any one of claims 1 to 3, wherein the modified host cell is a T cell.

5. The modified host cell of any one of claims 1 to 4, wherein the modified host cell is derived from cells from a subject to be treated with the modified host cell or a population thereof.

6. The modified host cell of any one of claims 1 to 5, wherein the modified host cell is an auxotrophic cell comprising a knockout of the UMPS gene and the auxotrophic factor is a uracil source or uridine.

7. The modified host cell of any one of claims 1 to 6, wherein the therapeutic factor is a chimeric antigen receptor (CAR).

8. The modified host cell of claim 7, wherein the CAR is a CD19-specific CAR (CD19-CAR).

9. A modified T cell, comprising: a knockout of the UMPS gene, rendering the modified T cell auxotrophic for a uracil source or uridine; and a transgene encoding a CAR.

10. Use of the modified T cell of claim 9 in the preparation of a medicament for treating a disease or condition in a subject.

11. The use of claim 10, wherein the disease or condition is cancer, Parkinson's disease, graft versus host disease (GvHD), an autoimmune condition, a hyperproliferative disorder or condition, a malignant transformation, a liver condition, juvenile onset diabetes mellitus, an ocular compartment condition, or a condition affecting a muscular, skeletal, circulatory, nervous, lymphatic, respiratory, endocrine, digestive, excretory, or reproductive system of a subject.

12. The use of claim 10 or 11, wherein the disease or condition is an autoimmune disease, and wherein the autoimmune disease is systemic lupus erythematosus.

13. The use of any one of claims 10 to 12, wherein the medicament for treating the disease or condition in the subject further comprises an auxotrophic factor, wherein the modified T cell requires the auxotrophic factor to function in vitro, ex vivo, and/or in vivo.

14. Use of the modified host cells according to any one of claims 1 to 8 in the preparation of a medicament for treating a disease or condition in a subject.

15. The use of claim 14, wherein the modified host cells are for co-use with an auxotrophic factor, wherein the modified host cells require the auxotrophic factor to function in the subject, and optionally wherein administration of the auxotrophic factor is withdrawn.

16. The use of claim 14 or 15, wherein the disease or condition is an autoimmune condition and the auxotrophic factor is for administration to the subject when the disease or condition flares up.

17. A method of producing a modified mammalian host cell comprising: (a) introducing into said mammalian host cell one or more nuclease systems that targets and cleaves DNA at an auxotrophy-inducing locus, or a nucleic acid encoding one or more components of said one or more nuclease systems; and (b) introducing into said mammalian host cell a donor template encoding a therapeutic factor; wherein the therapeutic factor is a chimeric antigen receptor.

18. The method of claim 17, further comprising (c) selecting cells having integrated the donor template and a knockout of the auxotrophy-inducing locus.

19. The method of claim 18, wherein the selecting comprises: (i) selecting cells that require an auxotrophic factor corresponding to the auxotrophy-inducing locus to function.

20. The method of any one of claims 17 to 20, wherein the auxotrophy-inducing locus is a gene encoding uridine monophosphate synthetase and the cells are selected by requiring a uracil source or uridine to function or by contacting the cells with 5-FOA.