CLAIMS

What is claimed is:

1. ~~A method of mitigating a non-hematologic severe regimen-related toxicity (SRRT) in a human subject in need thereof, the method comprising intravenously administering~~ Use of a therapeutic composition comprising an effective amount of E4ORF1+ HUVECs in the manufacture of a medicament for mitigating a non-hematologic severe regimen-related toxicity (SRRT) in a human subject in need thereof, wherein the medicament is to be administered intravenously to an adult human subject with Hodgkin's lymphoma or non-Hodgkin's lymphoma, wherein: (a) the effective amount is from about $10x10^6$ cells per kg bodyweight to about $30x10^6$ cells per kg bodyweight, (b) the subject has previously received high-dose therapy (HDT) and an autologous hematopoietic stem cell transplant (AHCT), (c) the ~~E4ORF1+ HUVECs are~~ medicament is to be administered to the subject on the same day that the subject receives the AHCT, and (d) the non-hematologic SRRT is selected from the group consisting of an oral / gastrointestinal SSRT and febrile neutropenia, thereby mitigating the SSRT in the subject.

2. The ~~method~~ use of claim 1, wherein the ~~E4ORF1+ HUVECs are~~ medicament is to be administered to the subject from about 2 hours to about 4 hours after the AHCT has been completed.

3. The use~~method~~ of claim 1, wherein the effective amount is from about $10x10^6$ cells per kg to about $20x10^6$ cells per kg bodyweight.

4. The use~~method~~ of claim 1, wherein the effective amount is about $20x10^6$ cells per kg bodyweight.

5. The use~~method~~ of claim 1, ~~further comprising~~wherein ~~subsequently administering~~ a second dose of the ~~therapeutic composition~~ medicament to be subsequently administered to the subject.

6. The use~~method~~ of claim 5, wherein the second dose is to be administered from about 1 day to about 3 days after the AHCT is completed.

7. The use~~method~~ of claim 1, wherein the subject is at least 40 years old.

8. The use~~method~~ of claim 1, wherein the subject is at least 60 years old.

9. The use~~method~~ of claim 1, wherein the therapeutic composition comprises E4ORF1+ HUVECs in a physiological saline.

10. The ~~method~~use of claim 1, wherein the therapeutic composition further comprises one or more excipients selected from the group consisting of buffers, salts, polysaccharides, proteins and preservatives.

11. The ~~method~~use of claim 1, wherein the therapeutic composition further comprises human serum albumin (HSA).

12. The ~~method~~use of claim 1, wherein the therapeutic composition further comprises Dextran40.

13. The ~~method~~use of claim 1, wherein the therapeutic composition further comprises about 0.25% DMSO.

14. The ~~method~~use of claim 1, wherein the therapeutic composition comprises about $5x10^6$ E4ORF1+ HUVECs per ml.

15. The ~~method~~use of claim 1, wherein the oral / GI SSRT is selected from the group consisting of mucositis, stomatitis, typhlitis, nausea, vomiting, and diarrhea.

16. The ~~method~~use of claim 15, wherein the mucositis is selected from oral, esophageal, gastric, small intestinal, large intestinal, colonic, rectal or anal mucositis.

17. The ~~method~~use of claim 1, wherein the AHCT comprises transplantation of bone marrow hematopoietic stem cells.

18. The ~~method~~use of claim 1, wherein the AHCT comprises transplantation of peripheral blood hematopoietic stem cells.

19. The ~~method~~use of claim 1, wherein the high dose therapy (HDT) comprises administration to the subject of a combination of chemotherapeutic agents selected from the group consisting of BEAM, BeEAM, FEAM, CBV, TBC, DHAP and Bu/Cy/Flu.

20. The ~~method~~use of claim 1, wherein the ~~method~~use also results in the mitigation of a hematologic SRRT.

21. The ~~method~~use of claim 20, wherein the hematologic SRRT comprises thrombocytopenia, neutropenia, leukopenia, or anemia.

22. The ~~method~~use of claim 20, wherein the time to neutrophil engraftment or platelet engraftment is reduced as compared to the time to neutrophil engraftment or platelet engraftment in a subject not treated with the therapeutic composition.

23. ~~A method of mitigating a non-hematologic severe regimen-related toxicity (SRRT) in a human subject in need thereof, the method comprising: administering~~ Use of a therapeutic composition comprising an effective amount of endothelial cells (ECs) in the manufacture of a medicament for mitigating a non-hematologic severe regimen-related toxicity (SRRT) in a human subject in need thereof, wherein the medicament is to be administered to a human subject who has undergone, is undergoing, or will undergo chemotherapy, wherein the ~~method~~ use results in mitigation of a SRRT in the subject.

24. The ~~method~~use of claim 23, wherein the SRRT is selected from the group consisting of an oral/GI toxicity, febrile neutropenia, a solid organ toxicity, veno-occlusive disease, and a severe infection.

25. The ~~method~~use of claim 23, wherein the ECs are human umbilical vein endothelial cells (HUVECs).

26. The ~~method~~use of claim 23, wherein the ECs are E4ORF1+ human umbilical vein endothelial cells (E4ORF1+ HUVECs).

27. The ~~method~~use of claim 23, wherein the subject has a malignant disease.

28. The ~~method~~use of claim 27, wherein the malignant disease is a lymphoma.

29. The ~~method~~use of claim 27, wherein the malignant disease is leukemia.

30. The ~~method~~use of claim 27, wherein the malignant disease is multiple myeloma.

31. The ~~method~~use of claim 27, wherein the malignant disease is myelodysplastic syndrome (MDS).

32. The ~~method~~use of claim 28, wherein the subject has a lymphoma selected from the group consisting of: Hodgkins's lymphoma (HL) and non-Hodgkins's lymphoma (NHL).

33. The ~~method~~use of claim 28, wherein the subject has lymphoma without CNS involvement.

34. The ~~method~~use of claim 28, wherein the subject has lymphoma with CNS involvement (CNS lymphoma).

35. The ~~method~~use of claim 28, wherein the subject has relapsed-refractory lymphoma.

36. The ~~method~~use of claim 23, wherein the chemotherapy is high dose therapy (HDT).

37. The ~~method~~use of claim 23, wherein the chemotherapy is myeloablative chemotherapy.

38. The ~~method~~use of claim 23, wherein the chemotherapy comprises administration to the subject of a combination of chemotherapeutic agents selected from the group consisting of BEAM, BeEAM, FEAM, CBV, TBC, DHAP and Bu/Cy/Flu.

39. The ~~method~~use of claim 23, wherein the chemotherapy is to be administered to the subject as part of a conditioning regimen to prepare the subject for receipt of a hematopoietic stem cell transplant.

40. The ~~method~~use of claim 23, wherein the subject has received a hematopoietic stem cell transplant.

41. The ~~method~~use of claim 23, wherein the subject has received a hematopoietic stem cell transplant at the time that the ~~therapeutic composition~~medicament is to be administered to the subject.

42. The ~~method~~use of claim 23, wherein the subject has received a hematopoietic stem cell transplant within about 3 days of the time that the ~~therapeutic composition~~medicament is to be administered to the subject.

43. The ~~method~~use of claim 23, wherein the subject receives a hematopoietic stem cell transplant on the same day that the ~~therapeutic composition~~medicament is to be administered to the subject.

44. The ~~method~~use of claim 23, wherein the subject receives a hematopoietic stem cell transplant within about 1 to about 4 hours of the time that the ~~therapeutic composition~~medicament is to be administered to the subject.

45. The ~~method~~use of claim 23, wherein the subject receives a hematopoietic stem cell transplant at the same time that the ~~therapeutic composition~~medicament is to be administered to the subject.

46. The ~~method~~use of claim 45, wherein the hematopoietic stem cell transplant and the ~~therapeutic composition~~medicament are to be administered to the subject in the same IV infusion.

47. The ~~method~~use of any of claims 39-46, wherein the hematopoietic stem cell transplant is an autologous hematopoietic stem cell transplant (ASCT).

48. The ~~method~~use of any of claims 39-46, wherein the hematopoietic stem cell transplant is an allogeneic hematopoietic stem cell transplant (AlloSCT).

49. The ~~method~~use of any of claims 39-48, wherein the subject receives high-dose therapy (HDT) prior to the hematopoietic stem cell transplant.

50. The ~~method~~use of any of claims 23-49, wherein the therapeutic composition comprises ECs at a concentration of about 5 million cells per ml.

51. The ~~method~~use of any of claims 23-50, wherein the therapeutic composition comprises endothelial cells in a physiological saline.

52. The ~~method~~use of any of claims 23-51, wherein the therapeutic composition~~-~~ comprises one or more excipients selected from the group consisting of buffers, salts, polysaccharides, proteins and preservatives.

53. The ~~method~~use of any of claims 23-52, wherein the therapeutic composition comprises human serum albumin (HSA).

54. The ~~method~~use of any of claims 23-53, wherein the therapeutic composition comprises Dextran40.

55. The ~~method~~use of any of claims 23-50, wherein the therapeutic composition comprises DMSO.

56. The ~~method~~use of any of claims 23-55, wherein the ~~therapeutic composition~~medicament is to be administered to the subjects intravenously (IV).

57. The ~~method~~use of any of claims 23-56, wherein the ~~therapeutic composition~~medicament is to be administered to the subject in single IV infusion.

58. The ~~method~~use of any of claims 23-56, wherein the ~~therapeutic composition~~medicament is to be administered to the subject in multiple IV infusions.

59. The ~~method~~use of claim 58, wherein the ~~therapeutic composition~~medicament is to be administered to the subject in a first IV infusion on Day 0 and a second IV infusion on Day 1, Day 2, Day 3, Day 4, or Day 5.

60. The ~~method~~use of claim 58, wherein the ~~therapeutic composition~~medicament is to be administered to the subject in a first IV infusion on Day 0 and a second IV infusion on Day 3.

61. The ~~method~~use of claim 58, wherein the ~~therapeutic composition~~medicament is to be administered to the subject in a first IV infusion on Day 0 and a second IV infusion on Day 2.

62. The ~~method~~use of claim 58, wherein the ~~therapeutic composition~~medicament is to be administered to the subject in a first IV infusion on Day 0 and a second IV infusion on Day 1.

63. The ~~method~~use of any of claims 23-62, wherein the effective amount is about $5x10^6$ cells per kg bodyweight.

64. The ~~method~~use of claims 23-62, wherein the effective amount is about $10x10^6$ cells per kg bodyweight.

65. The ~~method~~use of any of claims 23-62, wherein the effective amount is about $15x10^6$ cells per kg bodyweight.

66. The ~~method~~use of any of claims 23-62 wherein the effective amount is about $20x10^6$ cells per kg bodyweight.

67. The ~~method~~use of any of claims 23-62, wherein the effective amount is about $25x10^6$ cells per kg bodyweight.

68. The ~~method~~use of any of claims 23-62, wherein the effective amount is about $30x10^6$ cells per kg bodyweight.

69. The ~~method~~use of any of claims 23-62, wherein the effective amount is about $35x10^6$ cells per kg bodyweight.

70. The ~~method~~use of any of claims 23-62, wherein the effective amount is about $40x10^6$ cells per kg bodyweight.

71. The ~~method~~use of any of claims 23-62, wherein the effective amount is from about $5x10^6$ cells per kg bodyweight to about $40x10^6$ cells per kg bodyweight.

72. The ~~method~~use of any of claims 23-62, wherein the effective amount is from about $5x10^6$ cells per kg bodyweight to about $25x10^6$ cells per kg bodyweight.

73. The ~~method~~use of any of claims 23-62 wherein the effective amount is from about $10x10^6$ cells per kg bodyweight to about $20x10^6$ cells per kg bodyweight.

74. The ~~method~~use of any of claims 23-62 wherein the effective amount is about $20x10^6$ cells per kg bodyweight.

75. The ~~method~~use of any of claims 23-74, wherein the non-hematologic SRRT that is mitigated is selected from the group consisting of mucositis oral, esophageal, gastric, small intestinal, large intestinal, colonic, rectal or anal mucositis), stomatitis, typhlitis, nausea, vomiting, and diarrhea.

76. The ~~method~~use of any of claims 23-75, wherein the ~~method~~use also results in the mitigation of a hematologic SRRT.

77. The ~~method~~use of claim 76, wherein the hematologic SRRT comprises thrombocytopenia, neutropenia, leukopenia, or anemia.

78. The ~~method~~use of claim 76, wherein the time to neutrophil engraftment or platelet engraftment is reduced as compared to the time to neutrophil engraftment or platelet engraftment in a subject not treated with the therapeutic composition.

79. The ~~method~~use of any of claims 23-79, wherein the ECs are E4ORF1+ ECs.

80. The ~~method~~use of any of claims 23-78, wherein the ECs are E4ORF1+ HUVECs

81. ~~A method of mitigating a chemotherapy side effect in a human subject in need thereof, the method comprising: administering~~ Use of a therapeutic composition comprising an effective amount of endothelial cells (ECs) in the manufacture of a medicament for mitigating

a chemotherapy side effect in a human subject in need thereof, wherein the medicament is to be administered to a human subject who has undergone, is undergoing, or will undergo chemotherapy, wherein the ~~method~~ use results in mitigation of the chemotherapy side effect in the subject.

82. The ~~method~~ use of claim 81, wherein the ECs are E4ORF1+ ECs.

83. The ~~method~~ use of claim 81, wherein the ECs are E4ORF1+ HUVECs.