CLAIMS

What is claimed is:

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

5. The use of claim 1, wherein a second dose of the medicament to be subsequently administered to the subject.

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

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

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

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

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

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

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

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

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

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

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

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

22. The 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. 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 use results in mitigation of a SRRT in the subject.

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

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

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

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

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

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

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

32. The 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 use of claim 28, wherein the subject has lymphoma without CNS involvement.

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

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

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

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

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

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

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

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

44. The 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 medicament is to be administered to the subject.

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

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

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

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

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

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

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

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

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

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

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

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

59. The use of claim 58, wherein the 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 use of claim 58, wherein the 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 use of claim 58, wherein the 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 use of claim 58, wherein the 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 use of any of claims 23-62, wherein the effective amount is about $5x10^6$ cells per kg bodyweight.

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

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

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

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

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

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

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

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

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

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

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

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

81. 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 use results in mitigation of the chemotherapy side effect in the subject.

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

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