

Chromosomal Alterations of Pediatric Malignancy in a West Texas Population

Aditya Rajan,¹ Sahil Tonk,¹ Chhanda Bose,¹ Sharda P. Singh,^{1*} Sriman Swarup,¹ Santosh Chavali, Kishore Bhende,² Philip T. Palade,³ Ashly Hindle,¹ Meenakshi Darden,⁴ Vijay Tonk,^{2*} and Sanjay Awasthi^{1*}

¹Division of Hematology & Oncology, ¹Department of Internal Medicine, ¹School of Medicine, ²Department of Pediatrics, Texas Tech University Health Sciences Center, Lubbock, TX 79430, ³Department of Pharmacology and Toxicology, University of Arkansas for Medical Sciences, Little Rock, AR 72205, ⁴McGovern Medical School of the University of Texas Health Sciences Center, Houston TX, 77030

Listing of Supplemental Material(s):

Supplemental Table 1. Raw data and pivot table (Provided as an EXCEL File).

Supplemental Table 2. Most common loci altered in ALL patients by sex.

Supplemental Table 3. Most common loci altered in sarcoma patients by sex.

Supplemental Table 4. Most common loci altered in lymphoma patients by sex.

Supplemental Table 5. Most common loci altered in Wilm's tumor patients by sex.

Supplemental Table 6. Most common loci altered in neuroblastoma patients by sex.

Supplemental Table 7. Amplifications and Deletions at 8p11.22, (ADAM32, TACC1 and TM2D2): Gains (amplifications) and Losses (deletions) and no. of cases with rearrangement are listed by diagnosis.

Supplemental Table 8. Amplifications and Deletions at 15q11.1-15q11.2: Gains (amplifications) and Losses (deletions) and no. of cases with rearrangement are listed by diagnosis.

Supplemental Table 9. Amplifications and Deletions at 8p23.1: Gains (amplifications) and Losses (deletions) and no. of cases that had the rearrangement are listed by diagnosis.

Supplemental Table 10. Amplifications and Deletions at 14q11.2, 22481496-22974566: Gains (amplifications) and Losses (deletions) and no. of cases that had the rearrangement are listed by diagnosis.

Supplemental Table 11. Amplifications and Deletions at 14q11.2, 20203456-20331146: Gains (amplifications) and Losses (deletions) and no. of cases that had the rearrangement are listed by diagnosis.

Supplemental Table 2. Most common loci altered in ALL patients by sex

Chromosomal Loci	No. Female ALL	No. Male ALL	Total No. ALL Alterations
14q32.33	17	21	38
14q11.2	10	19	29
8p11.22	11	9	20
8p23.1	9	10	19
2p11.2	5	7	12
15q11.1q11.2	7	5	12
Xp22.33q28	3	5	8
22q11.22	4	4	8
15q11.2	6	2	8

Supplemental Table 3. Most common loci altered in sarcoma patients by sex

Chromosomal Loci	No. Female Sarcoma	No. Male Sarcoma	Total No. of Sarcoma Alterations
8p23.1	4	14	18
14q32.33	7	11	18
14q11.2	4	10	14
8p11.22	7	9	16
17q12	1	6	7
1q21.1	0	5	5
10q11.22	0	4	4
10q26.13	3	4	7
21p11.2p11.1	0	4	4
5q13.2	1	4	5
17q11.2	2	3	5
22q11.1	2	3	5
22q12.1	1	3	4
7q11.23	0	3	3

Supplemental Table 4. Most common loci altered in lymphoma patients by sex

Chromosomal Loci	No. Female Lymphoma	No. Male Lymphoma	Total No. Lymphoma alterations
14q32.33	2	6	8
8p11.22	2	5	7
14q11.2	2	4	6
8p23.1	1	5	6
1q23.3	0	3	3
7q34	1	2	3

Supplemental Table 5. Most common loci altered in Wilm's tumor patients by sex

Chromosomal Loci	No. Female Wilm's tumor	No. Male Wilm's tumor	Total No. Wilm's tumor alterations
14q32.33	3	2	5
8p11.22	2	2	4
8p23.2	0	4	4
16q11.2q24.3	2	1	3
1q21.1q44	0	3	3
2q13	3	0	3
4p16.3q35.2	2	1	3

Supplemental Table 6. Most common loci altered in neuroblastoma patients by sex

Chromosomal Loci	No. Female Neuroblastoma	No. Male Neuroblastoma	Total No. Neuroblastoma alterations
14q32.33	4	2	6
8p23.1	1	5	6
10q26.13	1	4	5
14q11.2	1	4	5
8p11.22	3	2	5
15q11.1q11.2	0	4	4
17q11.2	0	4	4
2p24.3	1	3	4

Supplemental Table 7. Amplifications and Deletions at 8p11.22, (ADAM32, TACC1 and TM2D2): Gains (amplifications) and Losses (deletions) and no. of cases with rearrangement are listed by diagnosis

DX	No. Cases	No. Gain	No. Loss
ALL	20	18	2
Neuroblastoma	5	5	0
Bone Tumor	4	2	2
Wilm's Tumor	4	4	0
Breast Tumor	5	5	0
Myeloid Neoplasm	3	2	1
Fibromatosis	2	2	0
Abnormal Monocytosis	1	1	0
Lymphoma	7	6	1
Rhabdomyosarcoma	2	2	0
Pancytopenia	3	2	1
Other Leukemia	2	2	0
Testicular Cancer	1	1	0
Hepatocellular Cancer	1	1	0
Medulloblastoma	1	1	0
Giant Cell Bone Tumor	1	0	1
Osteosarcoma	1	1	0
Chondroblastoma	1	0	1
Oral Lesion	1	0	1
Rectal Polyp	1	0	1
Chest mass	1	1	0
Neutropenia	1	0	1
Other Tumors	4	3	1
Other conditions	11	8	3

Supplemental Table 8. Amplifications and Deletions at 15q11.1-15q11.2: Gains (amplifications) and Losses (deletions) and no. of cases with rearrangement are listed by diagnosis

DX	No. Cases	No. Gain	No. Loss
ALL	26	9	17
Neuroblastoma	7	5	2
Brain Tumor	3	3	0
Breast Mass	3	0	3
Myeloid Neoplasm	2	1	1
Other Leukemia	2	1	1
Lymphoma	3	1	2
Bone Tumor	4	1	3
Osteosarcoma	2	1	1
Cytopenia	5	3	2
Oral Lesion	2	0	2
Ewing Sarcoma	1	0	1
Medulloblastoma	1	1	0
Peripheral Neural Epithelioma	1	0	1
Renal Cell Carcinoma	1	0	1
Rectal Polyp	1	0	1
Neutropenia	1	1	0
Hepatocellular Carcinoma	1	0	1
Melanoma	1	0	1
Other Tumors/Masses	6	1	5
Other Conditions	10	2	8

Supplemental Table 9. Amplifications and Deletions at 8p23.1: Gains (amplifications) and Losses (deletions) and no. of cases which had the rearrangement are listed by diagnosis

DX	No. Cases	No. Gain	No. Loss
ALL	13	2	11
Other Acute Leukemia	4	1	3
Neuroblastoma	6	1	5
Fibromatosis	4	0	4
Bone tumor	6	3	3
Lymphoma	4	0	4
Breast Mass	2	0	2
Osteosarcoma	2	0	2
Other Sarcoma	3	2	1
Thyroid Nodule	2	0	2
Hepatocellular Cancer	2	0	2
Ovarian	2	0	2
Renal	2	0	2
Cytopenia	4	1	3
Testicular Tumor	1	1	0
Abnormal Testes	2	0	2
Chest Mass	1	0	1
Chondroid tumor	2	1	1
Chondroblastoma	1	0	1
Rectal Mass	1	0	1
Langerhan's Disease	1	1	0
Arm Mass	1	1	0
Other Benign Tumor	3	0	3
Other conditions	9	3	6

Supplemental Table 10. Amplifications and Deletions at 14q11.2, 22481496-22974566: Gains (amplifications) and Losses (deletions) and no. of cases that had the rearrangement are listed by diagnosis

DX	No. Cases	No. Gain	No. Loss
ALL	15	11	4
Neuroblastoma	4	4	0
Lymphoma	4	3	1
Bone Tumor	2	2	0
Fibromatosis	2	1	1
Wilm's Tumor	2	2	0
Oral Lesion	2	2	0
Other Leukemia	1	1	0
Medulloblastoma	1	1	0
Renal Cell Carcinoma	1	1	0
Melanoma	1	1	0
Testicular Tumor	1	1	0
Ewing Sarcoma	1	1	0
Osteosarcoma	1	1	0
Breast Mass	1	1	0
Facial Mass	1	1	0
Chondroid Tumor	1	1	0
Other Tumors	9	9	0
Other Conditions	6	6	0

Supplemental Table 11. Amplifications and Deletions at 14q11.2, 20203456-20331146: Gains (amplifications) and Losses (deletions) and no. of cases which had the rearrangement are listed by diagnosis

DX	No. Cases	No. Gain	No. Loss
ALL	3	1	2
Other Leukemia	2	0	2
Osteosarcoma	1	0	1
Neuroblastoma	2	0	2
Lymphoma	2	0	2
MPN	1	1	0
Liposarcoma	1	0	1
Rectal Polyp	1	0	1
Melanoma	1	0	1
Other Tumors	5	2	3
Other Conditions	4	0	4