



FOUNDATIONS OF INTEGRATIVE ONCOLOGY

Module 2 The Complex Landscape of Cancer

Lesson 2 Characteristics of Tumor Cells

Learning Objectives – Understand and describe:

- Tumor Grading Systems
- Tumor Staging Systems
- Tumor Proliferative Index
- How Tumor Grading, Staging and Proliferative Index found in tumor pathology reports affect prognosis and treatment decision-making

Understanding Pathology Reports

Site of the primary tumor and the cell type (e.g., adenocarcinoma, squamous cell carcinoma)

Tumor Stage (TNM)

- **Tumor size T** and/or extent (reach)
- **Regional lymph node N** involvement (the spread of cancer to nearby lymph nodes)
- **Number of tumors M** (the primary tumor and the presence of metastatic tumors, or **metastases**)

Tumor Grade (how closely the cancer cells/tissue resemble normal cells/tissue; how aberrant?)

Tumor Staging (TNM)

Primary Tumor (T)

TX: Primary tumor cannot be evaluated

T0: No evidence of primary tumor

Tis: Carcinoma in situ (CIS; abnormal cells present but have not spread to neighboring tissue)

T1, T2, T3, T4: Size and/or extent of the primary tumor

Regional Lymph Nodes (N)

NX: Regional lymph nodes cannot be evaluated

N0: No regional lymph node involvement

N1, N2, N3: Degree of regional lymph node involvement (number and location of lymph nodes)

Distant Metastasis (M)

MX: Distant metastasis cannot be evaluated

M0: No distant metastasis

M1: Distant metastasis is present

Tumor Staging

Stage 0 Carcinoma in situ (pre-cancer)

Stage I - III Larger tumor size and/or spread of cancer; Higher numbers = more extensive disease

Stage IV The cancer has spread to distant tissues or organ

Tumor Grading

Differentiation + Growth Rate + Tumor size and locations

GX: Grade cannot be assessed (undetermined grade)

G1: Well differentiated (low grade)

G2: Moderately differentiated (intermediate grade)

G3: Poorly differentiated (high grade)

G4: Undifferentiated (high grade)