

JOURNAL-BASED LEARNING EXERCISES



Please select your choice of correct answers and complete the exercises online at: www.ibms.org/cpd/jbl

DEADLINE WEDNESDAY 1 MAY 2019

The first case of severe acute hemolytic transfusion reaction caused by anti-Sc2.
Lemay AS, Tong TN, Branch DR et al. *Transfusion* 2018; **58** (11): 2506–12. DOI:10.1111/trf.14867. Assessment No: 020219

Grading of prostate cancer: a work in progress.

Kweldam CF, van Leenders GJ, van der Kwast T. *Histopathology* 2019; **74** (1): 146–60. DOI: 10.1111/his.13767. Assessment No: 020719

01	When first described, anti-Sc1 was named anti-Bu ^a .	01	In order for a grading system to be successful, four criteria must be met.
02	The allelomorph to the antigen Bu ^a was originally named Sm.	02	Histopathological grading of prostate cancer remains the strongest prognosticator of disease recurrence and death.
03	Sc2 and Sc4 are both low-prevalence antigens. Sc1, Sc3, Sc5, Sc6 and Sc7 are all high-prevalence antigens.	03	The capture of the complex architectural heterogeneity of prostate cancers in five drawings by Gleason proved to be a very attractive concept for pathologists.
04	The <i>ERMAP</i> gene is located on chromosome 1q, adjacent to the <i>RH</i> genes.	04	Initially, prostate cancers were mainly graded using the universal four-tiered Broders system published in 1916.
05	Alloanti-Sc1 and -Sc2 are usually IgG, and fix complement.	05	Although several studies demonstrated the prognostic potential of cytonuclear grading, the lack of interobserver agreement and its sensitivity to variations in pathology processing reduced its routine applicability.
06	This example of anti-Sc2 was unusual in that it induced robust phagocytosis in a monocyte monolayer assay (MMA).	06	It was decided during the 2014 International Society of Urological Pathologists (ISUP) consensus conference to consider any cribriform pattern as a Gleason grade 3.
07	The patient had shown possible signs of a haemolytic transfusion reaction (HTR) nine years prior to this episode, and the presence of an anti-Sc2 was identified two years after that.	07	Several studies demonstrated the prognostic potential of cytonuclear grading. The interobserver agreement and its sensitivity in pathology increased its routine applicability.
08	Re-crossmatch of all the units transfused at the time were compatible.	08	The Gleason grading system has been modified twice during two ISUP consensus conferences.
09	Prior to the suspected HTR at the age of 18, the patient experienced several febrile, non-haemolytic transfusion reactions.	09	In 2005, the ill-formed gland pattern was added to Gleason grade 4.
10	At the age of 20, four units of blood were crossmatched for the patient, and one was found to be incompatible. This unit was found to be Sc2+, and the patient's plasma also reacted with two other examples of Sc2+ red cells.	10	By 2000, Gleason patterns 1 and 2, typical of low-grade transition zone carcinomas as encountered in transurethral resections, were hardly reported any more in biopsies.
11	There have been two reported cases of HDFN caused by anti-Sc2, and in both cases a transfusion was required by Day 2 after the birth.	11	Notably, among Gleason score 8 cancers, the question of whether the highest Gleason grade was 3 + 5 versus 4 + 4 proved only mildly predictive of recurrence.
12	The Reference Laboratory tested this patient's plasma against a range of what they described as low-prevalence antigens, but did not originally include an example of Sc2+ red cells.	12	Grading of prostatectomy specimens follows slightly different rules compared to biopsy grading.
13	There was an unanticipated re-exposure to the donor who had caused the reaction nine years earlier, and a nearly identical response was witnessed, with a positive serological reaction.	13	In grade 3 Gleason grading, the density of the neoplastic glands is defined by both the amount of intervening stroma or presence of intervening benign glands.
14	In the MMA, there is no higher level of phagocytosis in the proinflammatory state.	14	Gleason grade 4 subpatterns include papillary pattern lined by columnar tumour cells, complex fused glands with irregular cribriform areas, and abortive glands consisting of structures with glandular shape, but lacking a lumen.
15	Anti-Sc7 has been associated with a mild delayed HTR.	15	Gleason grade 5 pattern represents carcinoma areas always detectable at low power (4x magnification).
16	On this occasion, when the patient had the severe acute HTR, she had received less than 50 mL of blood.	16	Prostate cancer includes the variant classical ductal (endometrioid) carcinoma.
17	The normal reference given in the paper for unconjugated bilirubin was <14 mmol/L.	17	The most common grade 5 patterns include comedocarcinoma, showing a necrotic central plug surrounded by fused gland and solid area of cells with signet ring-like appearance.
18	At age 21 years, the patient transferred to an adult facility with notes on anti-Sc2 having been previously detected, but without any details on the previously experienced transfusion reactions.	18	It has not been common practice to be very conservative when assigning a Gleason grade 5.
19	The MMA used a cut-off of 5 phagocytic index as a measure of potential for clinical significance.	19	Recognition of intraductal carcinoma of the prostate (IDC-P) as a strong independent prognosticator has taken several years.
20	The adult facility looking after the index patient had five other patients with anti-Sc2. All had been heavily transfused, but none had a history of an HTR due to their anti-Sc2.	20	Sauter and colleagues developed an 'integrated quantitative' Gleason score (IQ-Gleason) which was based entirely on percentages of Gleason patterns 3, 4 and 5.

REFLECTIVE LEARNING

01	With more and more transfusion laboratories using either electronic issue or an "immediate spin" crossmatch, how concerned should we be about missing antibodies to low-prevalence antigens? Give reasons for your decision.	01	Reflect on the potential development of screening in prostate cancer.
02	Why is the carrier molecule (human erythrocyte membrane-associated protein), which is an erythroid transmembrane adhesion/receptor protein, considered to be part of the immunoglobulin superfamily?	02	Review the opportunities immunocytochemistry offers.