

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 JULY 2020

Association of SNPs in *PLA2R1* with idiopathic and secondary membranous nephropathy in two Chinese cohorts Tian CX, Li L, Qiu P, Qiu YR. *Br J Biomed Sci* 2020; **77** (1): 24–8. Assessment No A101020

01	About 70% of membranous nephropathy (MN) patients have idiopathic MN (IMN), one of the most common types of primary glomerulonephritis.	11	The authors previously reported that 71.7% of patients with IMN and 9.3% of patients with SMN were PLA2R-Ab(+).
02	Diseases such as systemic lupus erythematosus (SLE), hepatitis B and hepatitis C infections, and malignancies, are major causes of IMN.	12	The rs35771982 single nucleotide polymorphism (SNP) within <i>PLA2R1</i> had the strongest association with IMN in cohorts from Korea, South Asia, Taiwan, China and Japan.
03	About 35% of refractory MN patients develop end-stage renal disease within five years.	13	Saeed <i>et al.</i> reported no association between rs35771982 and IMN in a cohort of PLA2R-Ab(+) African Americans.
04	Idiopathic MN is now considered to be an autoimmune disease that targets the kidneys, in which there are circulating autoantibodies.	14	The rs3749117 SNP within <i>PLA2R1</i> is less common in cohorts of white Europeans with SMN, and in Caucasians, African Americans and Japanese who are PLA2R-Ab(+).
05	Serum anti-PLA2R antibodies were measured using a commercial direct immunofluorescence staining kit.	15	The rs3828323 SNP within <i>PLA2R1</i> is in a coding region of exon 5.
06	Genomic DNA was isolated from peripheral blood leucocytes using a DNA isolation kit obtained from Euroimmun.	16	Chinese individuals with the rs4664308-A allele had an increased risk of SMN, but those with the rs4664308-G allele had an increased risk of IMN.
07	Amplification was performed on an ABI Vii7 Dx real-time polymerase chain reaction (PCR) system from Applied Biosystems.	17	The rs3749119 SNP within <i>PLA2R1</i> is in the 5' untranslated region of exon 1.
08	Genotype and allele distributions of rs35771982, rs3749117 and rs4664308 differed significantly between IMN patients and controls.	18	The circulating level of anti-PLA2R autoantibody is a highly specific diagnostic biomarker for IMN.
09	All groups were age- and sex-matched, and differences in serum creatinine were as expected, although there were no differences in serum albumin.	19	In this study, group B comprised 166 IMN patients and 144 healthy controls.
10	Genotype and allele distributions of rs3749119 and rs3828323 showed significant differences between IMN patients and controls.	20	The A allele in rs35771982 and the C allele in rs4664308 were associated with PLA2Rab(+) in IMN patients from Hubei Province in China.

REFLECTIVE LEARNING

01	Idiopathic membranous nephropathy is now considered to be an autoimmune disease. Choose another common autoimmune disease and discuss the role of molecular testing in the laboratory assessment of the condition.	02	Explain the meaning of the term idiopathic in relation to primary glomerulonephritis, and how this compares to secondary MN disease.
-----------	--	-----------	--

DEADLINE WEDNESDAY 1 JULY 2020

British Journal of Biomedical Science in 2019. What have we learned?

Blann A. *Br J Biomed Sci* 2020; **77** (1): 1–6. (Assessment No: MDJBL11)

01	75% of the 39 papers published in <i>BJBS</i> employed either RNA and/or DNA techniques.	11	Warford and colleagues showed that in the determination of clonality in lymphoma, diagnosis can be aided and improved by employing branched DNA <i>in situ</i> hybridisation for light chain mRNA.
02	The liver was the tissue /organ type studied most over the year's publications.	12	The new wave of molecular genetics is based on two main types of non-coding RNAs: micro-RNAs (mRNAs; individual molecules generally identified by Mir followed by a number) of around 22 nucleotides, and long non-coding RNAs (Including RNAs) of at least 200 nucleotides.
03	In El-Bendary and colleagues' paper, <i>CCL2</i> and <i>CCR2</i> genes were linked with susceptibility to herpes virus C single nucleotide polymorphisms.	13	When measuring the micro-RNA (miR-935) in non-small cell lung cancer and comparing to nearby normal lung tissue, the significance for patients with the lowest levels is that they are less likely to have lymph node metastasis.
04	Platelet-derived growth factors and albumin may be important in combination in determining the extent of hepatic fibrosis.	14	In the study by Abdullah and colleagues looking at age-related cataracts, miR-15a was found to be increased in expression within the lens epithelia.
05	In terms of non-alcoholic fatty liver disease, only age was linked with the development of urolithiasis.	15	In a study published in the journal by Aminian and colleagues on lncRNAs expression in gastric cancer, they discovered a reduced frequency of a deletion allele in the target sequence in lncRNA GA55 in patients' DNA.
06	In terms of diabetes, only hypertension is regarded as a major clinical feature.	16	In a study published by Dou and colleagues on <i>Klebsiella pneumoniae</i> , they discovered an advance in detection when using multiplex PCR towards an organism-specific gene, <i>rcaA</i> , and 23S rRNA.
07	Septicaemia is linked to alterations in white blood cell count, neutrophils, platelets, cytokines, creatinine and acid base.	17	In the study of the pathogenicity of <i>Helicobacter pylori</i> in gastric disease, two types of genes, <i>gag</i> and <i>fro</i> , have been implicated.
08	In terms of cellular and tissue damage responses in septicaemia, Kumar and colleagues provided evidence to support the role of neutrophil-derived reactive nitrous oxidative stress.	18	In the study by Pitt and colleagues on the antibiotic potential of snail mucus, they discovered a number of proteins that inhibited the growth of <i>Pseudomonas aeruginosa</i> . The most promising was a 35.4 kDa molecule called Aspernin.
09	The presence of melanin pigment in malignant melanomas does not mask antigen-antibody interactions.	19	In the work by Lucejko and colleagues studying hepatitis viruses and liver disease, they compared quantitative measurement of HCVag with that of HCV RNA in HCV-infected patients, and discovered that the immunoassay could be a viable option to nucleic acid assessment.
10	In Orchard's paper, the use of immunohistochemistry to demonstrate V600E <i>BRAF</i> mutations in malignant melanoma had a sensitivity of 100% and specificity of 80%.	20	In the paper published by Shabani and colleagues on andrology investigations, it was reported there was a possible role in the study of SNP (single nucleotide polymorphism) molecular alterations/mutations in the study of glial cell-derived neurotrophic factor (GDNF), which has an important role in spermatogenesis in male infertility.

REFLECTIVE LEARNING

01	What is the value of studying single nucleotide polymorphisms in the evaluation of disease pathogenesis?	02	What are the problems faced when performing immunohistochemistry on heavily pigmented melanocytic lesions? Discuss how these can be overcome.
----	--	----	---