Molecular Biology

Diseases~~Complex diseases~~ such as cancers have complex underlying molecular mechanisms. In the last two decades, utilization of~~Using~~ omics data, such as the gene expression data, to unravel~~reveal these~~ complex biological mechanisms underlying diseases has become customary~~extremely hot~~ in the fields of biomedicine and life science~~s during the last two decades~~. However, mining useful information from the huge collection~~mass~~ of such data is a monumental task. In this context~~For this challenge~~, bioinformatics methods and statistical analysis tools, which include~~among which~~ feature selection algorithms and pathway analysis methods, are of particular importance.

Feature selection or variable selection [1, 2] is a~~n indispensable~~ machine learning method that is indispensable for dealing with~~tackling~~ the curse of dimensionality problem accompanying the~~that accompanies~~ omics data generated using~~by~~ high-throughput technologies. The curse of dimensionality refers~~is referred~~ to the issue of~~that~~ ~~the~~ a large number of predictors/genes in~~from~~ a gene expression dataset. Since the ~~C~~conventional statistical methods fail to estimate the associated coefficient~~s~~, i.e.,~~,~~ the effect size, of each feature, they are rendered~~and are thus~~ inapplicable. Here, ~~A~~a feature corresponds to a potential individual biomarker, such as a gene or a metabolite.

On the basis of how the relevant markers are to be selected, the ~~C~~conventional feature selection algorithms could~~may~~ be broadly~~roughly~~ divided into three categories:~~, namely,~~ filter, embedded, and wrapper ~~depending on how relevant markers are to be selected~~ [3, 2]. In~~The feature selection of an~~ the embedded method, feature selection is usually realized by employing~~using~~ a penalized regression model, such as LASSO [4] and elastic net [5]. An embedded method is able to~~can~~ ~~simultaneously~~ select the relevant features and estimate the associated~~those~~ coefficients (the effect sizes of the selected~~those~~ features) simultaneously in the final model, ~~of~~ which is not possible in the~~a~~ filter method~~ is incapable~~.

Medical

A total of 21 patients who were histopathologically diagnosed with ACC histopathologically during January 2005-May 2018 from the Dicle University Faculty of Medicine were included in this study. Patient data and medical follow-up from January 2015 to January 2017 were recorded retrospectively from the Dicle University Hospital database system. Medical data were formed prospectively collected for patients recorded between January 2017 and May 2018. The Demographic demographic characteristics of patients (age and, gender), localization, size and volume of the tumor, whether they the tumor were was operated, tumor stage, hormonal activity (if they production of were glucocorticoid, mineralocorticoid, androgen, and catecholamine production), total Weiss scores in of the pathology material of patients who were operated, pre-operative DHEA-S level, maximal standardized uptake value (SUV-max) of adrenalin mass in pre-op PET-CT imaging, metastasis status, recurrence status, chemotherapy, and general follow-up period were all recorded. The status of pPatients' survival and dead status death was taken collected from the database system of public health directorate;, if the patients dead, those who died because of adrenocortical cancer ACC were included in the study. Patients with adrenocortical cancer ACC who died due tobecause of other reasons were excluded from the study. The oOverall survival time was calculated from the date of tissue diagnosis to the date of death or to the last follow-up date. Then, the patients were divided into two groups, including the survival groups (n = 6 people) and the dead groups (n = 15 people).

ACC can be active or inactive hormonally. It can secrete corticosteroids, mineralocorticoids, or androgens from steroid hormones in 50%-70% of cases. More than half of the active hormone-producing ACCs are observed as lead to cushing Cushing syndrome (3). A High high level of dehydroepiandrosterone sulfate (DHEA-S), which is a marker of adrenal androgen release in the evaluation of the adrenal masses detected incidentally, suggests more of adrenocortical carcinoma (4).

Microbiology

Background and aim: Several studies have established that the appendix is closely related to many diseases, such as inflammatory bowel disease (IBD), colorectal cancer (CRC), and neurological diseases. However, the underlying mechanisms for these are still unexplored. The relationship of intestinal flora with the occurrence and development of diseases has been extensively explored. This study aimed to compare the difference in microbiota of patients with a history of appendectomy (group P) and healthy individuals (Group H) to discover the microorganisms responsible for appendectomy-related diseases and evaluate whether appendectomy could affect the stability of gut microbiota since appendix is considered to be a "protective umbrella" for gut microbiota.

Methods: Fecal samples of patients with a history of appendectomy and healthy individuals, before and after bowel cleansing, were collected by DNA extraction for 16S rDNA analysis and metagenomics sequencing. LEfSe analysis and metastats were used to compare different species, functional genes, and enriched pathways between the two groups.

Results: The beta-diversity analysis revealed significant differences among samples of Group P, indicating that the absence of appendix affects the stability of gut microbiota. Taxa analysis showed that the main phyla in Group P and Group H were Bacteroidetes, Firmicutes, and Proteobacteria. However, it was observed that the most abundant families in Group P had changed, with a significantly altered abundance of Prevotellaceae and Bacteroidaceae as compared to Group H. Metastats showed the altered species mostly belonged to the family Prevotellaceae and Bacteroidaceae. The distinguished functional genes were recognized to be Glycoside Hydrolases (GH) and Glycosyl Transferases (GT).

Chemistry

Among the various double perovskite oxides, A_2CrSbO_6 (A = Ca, Sr) has grabbed attention due to their different magnetic structures. Retuerto et al.[8] first synthesized the double perovskite Ca_2CrSbO_6 and reported its structure and magnetic properties. Ca_2CrSbO_6 shows a monoclinic structure [a = 5.4932(3) Å, b = 5.4081(3) Å, c = 7.6901(5) Å, β= 90.0022(1)°, at 300 K] which is defined in the space group P21/n. The Cr and Sb cations are almost completely ordered in the B-sublattice of the perovskite structure. They report that Ca_2CrSbO_6 behaves as a Curie-Weiss paramagnet at high temperatures with μ_{eff} = 3.53(1) μ_B and θ_P = 8K. It exhibits a robust ferromagnetic component below the ordering temperature of T_C = 13 K, with a saturation magnetization of 2.36 μ_B/f.u. at 5 K. The electronic band structure and the ferromagnetic properties of the double perovskite Ca_2CrSbO_6 calculated by the first-principles method were reported by Yi et al.[9] Ca_2CrSbO_6 was found to have a stable ferromagnetic ground state and the spin magnetic moment per molecule was calculated to be 2.99 μ_B. The contribution of chromium into the total magnetic moment was found to be the maximum. These results indicate that Ca_2CrSbO_6 is half-metallic, and it is the first example of a ferromagnetic double perovskite containing a non-magnetic B′ cation. Thus, these materials can potentially serve as alternatives to other magneto resistive compounds. Hence, we were motivated to explore the critical behavior of Ca_2CrSbO_6 around T_C by analyzing the isotherms of magnetization $M(H)$ with an iteration process and the Kouvel-Fisher method.

Virology

Subsequently, Huang *et al.*~~,~~ (2010) reported the co-circulation of GIII and GI of JEV ~~during~~from 2005~~-~~ to 2008[30]. In China, the ~~commonest~~ occurrence of JEV GIII was documented from 1949~~-~~ to 1989 ~~and~~, subsequently ~~the~~followed by the distribution of both GIII ~~&~~and GI ~~was noted~~[31]. Interestingly, a typical genotype variation ~~has been~~was noted, ~~by~~reflected by the dominant occurrence of JEV genotypes~~i.e.,~~ i.e., GI in 2001, 2003, and 2005 and GIII in 2004[32], ~~which indicated~~indicating the competing ~~behaviour~~ behavior of genotypes for establishment in the endemic areas. ~~Though~~Although JEV GII, GIII, ~~&~~and GIV ~~had~~have been known to be distributed in Indonesia, ~~the~~a recent study ~~carried out~~conducted in Jambi ~~have reporte~~reported~~d~~ ~~the detection of GI~~ in *Culex gelidus* mosquitoes[33] remains ~~the~~that ~~undergoing~~underwent strain replacement ~~phenomenon of the commonest~~of the common JEV genotypes in ~~these~~this region. Apart from documenting human JEV isolates, China has recovered considerable JEV GIII isolates from the swinery[34], ~~the~~an important amplifying host involved in the natural cycle of JEV. Recently, a new strain of JEV (GI) was isolated ~~in~~from vectors in Shanghai, China, and was found to be closely related to ~~the~~ previously detected Shandong strains ~~during~~in 2013~~,~~. However, the study~~but~~ found that it was distantly related to other Shanghai strains isolated during the 2000s[35]. Interestingly, a genetically stable low virulent JEV (T1P1) was isolated from *Armigeres subalbatus* in Liu-Chiu-islet, a ~~paddy~~paddy-free area in Taiwan. ~~and has been~~It was proposed as a natural form of a live attenuated vaccine candidate[36]. The ~~Persistence~~persistence of low virulent JEV (T1P1) in a ~~paddy~~paddy-free isolated area indicates the capacity of the virus, ~~which~~ to ~~undergoes evolutio~~evolve~~n~~ in isolated/independent ecosystems. The Muar strain of JEV, the only representing GV strain ~~had been~~was detected in Malaya, from a human case in 1952. It was ~~and~~subsequently detected in Tibet, China, ~~during~~in 2009[37] and recently ~~from~~in the Republic of Korea (ROK) after a long gap of 57 years ~~during~~from 2008~~-~~ to 2011, from *Culex bitaeniorhynchus* mosquitoes[38]. The ~~Detection~~detection of GV in China and Korea indicates the widespread dispersal of the genotype and warrants strengthening of the surveillance system in the JE endemic countries.

Material Science and Metallurgy

Moreover, ~~some important~~the problems ~~like~~of agglomeration, porosity, particle cracking, ~~of particles~~ and ~~particle~~ pull out have been also reported ~~by researchers~~ [9—13]. ~~V.~~Sethi [10] reported that the reinforc~~ement~~ing of ceramic particles in Al/Si alloy metal matrix composites resulted in particle cracking and debonding ~~because of weak interfacial bonding between matrix and reinforcing particles~~. Moreover, the secondary processing, such as ~~like~~ machining, bending, and cutting, on ~~aluminium~~aluminum composites ~~will be~~is also difficult. ~~In order T~~to overcome these limitations of metal/ceramic composites, metal/metal composite~~s system~~ (MMCs) ~~was~~have been designed ~~and developed~~ [14—17]. It is expected that ~~M~~metal/metal composites~~, which are the new generation composite materials, were expected to~~ can eliminate the ~~deficiencies~~problems of ~~such as~~ reactions at ~~the~~ interfaces, ~~withdrawal~~ cavit~~ies~~y formation, breakage and agglomeration of ~~the~~ reinforcing particles, and high porosity.~~ In this new generation metal metal composites~~MMCs, the matrix and reinforcing materials ~~used are of~~have similar character~~istics~~, thus ~~making~~forming intermetallic ~~formation~~compounds at the interface. The ~~candidate of~~most common reinforcing metals and alloys ~~to be~~ used in ~~metal/metal composites~~MMCs are Cu, Ni, Ti, Mg, 316L SS ~~etc.~~ [18—21]. Among these reinforcing materials, 316L SS ~~stands out with~~has superior corrosion resistance and mechanical strength [22, 23]. Qiaolei Li et al. [24] studied the wear properties of the ductile/hard phase in Al/316L SS composite.~~ As a result of this study it was~~ and reported that the wear resistance of Al/316L SS composite was three times higher than that of the base alloy. Hassan et al. [18] ~~studied about~~investigated magnesium-based ~~metal metal composites~~MMCs and reported the minimal presence of porosity and an~~important development~~ improvement in the mechanical strength. Krishna et al. [15] investigated ~~the~~ A356-based, Al/20Cu/10Mg reinforced composites produced by stir casting ~~technique~~ and ~~declared~~asserted ~~that the~~significant improvements in mechanical properties, ~~like~~such as tensile strength, elastic modulus, and ductility ~~were improved comparing to the alloy. As seen in previous studies,~~

Psychology

The adolescence period is accepted as the period in which the main health behaviors are developed (6). ~~Within this context, d~~Developing positive health behaviors in this period of life may ~~affect~~ influence the lifestyles and ~~the~~ opinions about health in the future, as well. In this period, e-health literacy should be emphasized ~~in~~ for protecting and promoting the health, the health literacy level should be evaluated in providing services to the adolescents, and ~~the~~ interventions ~~raising awareness in health literacy and improving e-health literacy~~ should be planned for raising awareness in health literacy and improving e-health literacy. It is important that ~~the~~ e-health literacy skills are developed among adolescents ~~because~~ as they consider the ~~internet~~ Internet as the primary and the best resource to search for health information (11,12). It has been reported that 98% of the adolescents use the ~~Internet~~internet everyday and this rate is higher compared to the rate of all the other age groups (13). It has also been reported ~~in the studies~~ that ~~the Internet~~internet ~~use~~ usage is correlated with adolescent patients and e-health literacy (4,14). A survey in 2016 showed that 84% of the ~~teenagers~~ adolescents in the USA (13~~–~~18 years) had obtained health information on the ~~Internet~~Internet at least once before~~,~~. ~~Thirty-eight~~38% ~~percent~~ searched online for health information once a year, and ~~,~~24% searched for online health information at least monthly or more frequently (15). ~~Within this context,~~In short, it ~~has been~~has been indicated that the ~~the Internet~~Internet is the most suitable environment for the dissemination of health information and also the promotion of health among ~~the~~ adolescents (16).

Adolescents without ~~E~~e-health literacy ~~are~~ may be exposed to false information from ~~low~~ low-quality health sources ~~throuh~~throughout the ~~Internet~~Internet ~~–~~(15). ~~It has been reported that a~~According to studies, adolescents can have difficulty in using and understanding online health information, although they use information technologies frequently ~~–~~(11). It has also been reported ~~in the literature,~~that there is a need for safe browsing ~~of by the~~ adolescents, especially ~~for~~ on ~~especially~~ important

Physics

The inertial mass of vortices, ~~in terms of the energy of the unique kelvon quasiparticle in the Bose and Fermi superfluids,~~ was~~has been~~ discussed recently in [14], in terms of the energy of the unique kelvon quasiparticle in Bose and Fermi superfluids, and~~where~~ it was suggested that the ~~origin of the~~ inertial mass of a vortex originates~~is~~ due to the quasiparticles confined within the core of the individual vortex. With the consideration of~~Considering~~ the classical limit of large quantum numbers, ~~the author obtained~~ a relationship between the Kelvin waves and the inertial mass of the classical vortices and vortex rings was obtained. Recently, it was reported that the~~The~~ non-local electrical response in graphene, driven by the chargeless modes, is~~was found recently to be~~ sensitive to the quantities which are not directly accessible in the electrical transport measurements [15, ~~17~~16]. Examples of~~Among~~ these quantities are the spin currents and the valley currents. In particular~~Particularly~~, a giant non-locality close to~~near~~ Dirac point in graphene was~~is~~ observed in [~~16~~17], while performing~~during the~~ non-local magnetotransport measurements ~~performed~~ in the Hall bar geometry, and the observed large non-locality, close to~~near~~ the Dirac point (which persists up to room temperatures), was~~is~~ attributed to the long-range flavor~~flavour~~ currents induced due to~~by~~ the lifting of the spin-valley degeneracy.

It is predicted that the~~The~~ strongly correlated electron systems ~~are predicted to~~ obey the universal collision-dominated transport dynamics resembling that of the viscous fluids [18-21]. However, the study of such phenomena has been unsuccessful~~failed~~ so far, due to~~by~~ the lack of known macroscopic signatures on electron viscosity [22-26]. In a recent report~~Recently~~, ~~the~~ vorticity was~~has been~~ considered ~~as~~ a signature of ~~the~~ electron viscosity, which becomes a verifiable striking macroscopic dc transport behavior~~behaviour~~ [27].

Economics

Compared to that in 2015, China's score ~~of~~ in the ecological civilization index (ECI) was increased by 2.98 in 2017 as the improvements in 37 cities were ~~huge~~significant, and those in another 198 cities were ~~obvious~~satisfactory——~~some~~ around 60% of China's land area has been clearly better (see ~~fig.~~Figure 2). During these two years, the environmental quality had been continuously ~~better~~improved, ~~while~~ and the economic society had advanced ~~fast~~ rapidly. From 2015 to 2017, China's per capita gross domestic product (GDP) was increased by 6.2% per year ~~from 2015 to 2017~~, which contributed the enhancement of 0.19 ~~of China' enhance for~~ in the score of ECI of China; the scores on the ~~Air Quality Index~~ air quality index (AQI) and the ~~City Water Quality Index~~ city water quality index (CWQI) were declined by 11% and 20%, respectively, which contributed the enhancement~~improvement~~ of 0.53 and 0.48, respectively, ~~for~~ in the score of ECI.

China's rest of the regions~~'~~, ~~so is~~and hence China's eastern region's ecological civilization development is also better. In 2017, the eastern region's average score in ECI was 71.17, which was "Good,"~~,~~ ~~increasing~~increased by 2.95 from ~~the equivalent in~~ 2015. In ~~the~~this region, 2 cities were "Excellent,"~~,~~ 61 cities were "Good,"~~,~~ 38 cities were "Average," and only 1 city was "Poor,"~~,~~ ~~taking up~~accounting for 1.96%, 59.80%, 37.26%, and 0.98%, ~~separately~~respectively. Nonetheless, the ~~region's~~ region's economic development ~~did not~~had no ~~coordinate~~ coordination with its eco-conservation. The region's green production scored 71.47, which was 3.38 higher than the middle region's score or 4.03 higher than the western region's score; the middle region's green production score was 67.85, which was 2.1 lower than the middle region's score or 2.92 lower than the western region's score; the gap between the green environment score and the green production score ~~were~~ was 3.62, which was much higher than ~~the equivalent~~ those of the middle region's and western region's scores; the eastern region's ~~unbalance~~imbalance between urban development and rural development was ~~reflected~~evaluated by the ratio of per capital disposable income of urban residents divided by that of rural residents~~—~~, i.e.,~~–~~ 2.03, which was 0.17 higher than that of the middle ~~region's~~ region or 0.64 higher than that of the western ~~region's~~ region.