中国工程科技知识中心
China Knowledge Centre for Engineering Sciences and Technology

《整合医学战略研究（2035）》参考

2019 年第 16 期（总第 56 期）

中国工程科技知识中心医药卫生专业分中心
中国医学科学院医学信息研究所　　2019 年 8 月 20 日

[动态信息]

1. **Frameless Brain Radiosurgery Maybe a Boon for Patients, Surgeons**

【**medscape**】Early experience with the Gamma Knife (GK) Icon — a novel form of frameless stereotactic radiosurgery (SRS) — may represent a significant advance in brain cancersurgery for patients and surgeons alike.

链接： https://www.medscape.com/viewarticle/916821

2. **Human breath carries information that may aid in diagnosis**

【**news-medical**】Human breath carries a breadth of information, and KAUST research scientist Osama Amin has partnered with KAUST's Mohamed-Slim Alouini and Basem Shihada and colleagues Maryam Khliad and Said Ahmed at Information Technology University, Pakistan, to harness that information.

链接： https://www.news-medical.net/news/20190805/Human-breath-carries-information-that-may-aid-in-diagnosis.aspx

3. **Diabetes data analysis will lead to better blood sugar monitoring and insulin delivery**

【 **news-medical** 】 The lives of people with Type 1 diabetes could be significantly enhanced through algorithms that connect glucose monitors and insulin pumps to automatically regulate blood glucose to healthy levels, in the same fashion that cruise control in an automobile regulates speed.

链接： https://www.news-medical.net/news/20190813/Diabetes-data-analysis-will-lead-to-better-blood-sugar-monitoring-and-insulin-delivery.aspx

4. **Scientists take first step towards digital map of the ion channels in the brain**

【news-medical】Researchers from École Polytechnique Fédérale de Lausanne, Switzerland (EPFL) have mapped the molecular workings of potassium ion channels within the brain. The study titled, "A kinetic map of the homomeric voltage-gated potassium channel (Kv) family," was published in the latest issue of the journal Frontiers in Cellular Neuroscience.

链接：https://www.news-medical.net/news/20190816/Scientists-take-first-step-towards-digital-map-of-the-ion-channels-in-the-brain.aspx

5. **VA, DeepMind Machine Learning Model Predicts Kidney Disease**

【hitinfrastructure】The Department of Veterans Affairs (VA) and DeepMind Health, a Google-backed research company, have developed a machine learning tool that can forecast acute kidney injury in patients up to 48 hours in advance.

链接：

https://healthitanalytics.com/news/va-deepmind-machine-learning-model-predicts-kidney-disease

6. **糖尿病整合医学信息化管理与综合管理研讨会在青召开**

【鲁网】2019 国家级继续教育项目《糖尿病专科规范化管理培训项目》暨《糖尿病整合医学信息化管理与糖尿病足病综合管理研讨会》于 2019 年 8 月 4 日在青岛内分泌糖尿病医院学术报告厅召开。本次会议吸引了来自全国各地的内分泌糖尿病专业人员。

链接： http://qingdao.sdnews.com.cn/jk/201908/t20190804_2591635.htm?from=timeline

7. **陈润生：大数据改变大健康模式**

【新华网】在 8 月 12 日举行的第四届中国创业创新博览会开幕大会暨新华思客会上，中国科学院院士、中国科学院健康大数据研究中心主任陈润生作主题演讲时表示，"遗传密码的破译，使得生物进入大数据时代"。

链接： http://www.nmg.xinhuanet.com/xwzx/2019-08/15/c_1124880578.htm

8. **装上 3D 打印关节，这一次不为酷炫而是救命**

【腾讯网】3D 打印个性化关节假体，为骨盆肿瘤等过去无法治疗的骨科严重疾病找到了新的治疗方式，不仅给患者创造了生存下来的机会，也让很多原本生活质量很差的骨科疾病患者提高了生活质量。

链接：https://new.qq.com/omn/20190724/20190724A0FTW900.html

9. **裸眼 3D 让医生眼神更“犀利”**

【人民网】近日，在上海市第一人民医院手术室里，一例人工智能（AI）人眼追踪及 4K 超高清技术裸眼 3D 高难度腹腔镜手术顺利完成。术中，主刀医生没有佩戴 3D 眼镜，而是由特殊摄像头自动识别、追踪其视线，并在手术显示屏上动态呈现 4K 高清 3D 手术图像。无论医生转头还是移动，屏幕上的画面始终都能“追上”并保持清晰、准确、无延时。

链接： http://m.people.cn/n4/2019/0803/c34-13026336.html

10. **随着可穿戴设备数量的增长安全性 隐私性和法律挑战也随之增长**

【蜀财网】可穿戴设备可分为两大类：固定设备，如 Amazon Echo 和 Google Home，以及可设计类似于蓝牙耳机或助听器的可穿戴设备。除了能够倾听之外，一些即将推出的可穿戴设备还将具有脑电图(EEG)技术，该技术分析佩戴者的脑电波以识别她在特定时刻想要或不想要的东西。例如，EEG 可以使听觉者知道其佩戴者完全专注于谈话，因此不应该通过窃听她耳边的信息来打断。

链接： http://www.suloon.com/channels/hulianwang/2019/0816/3144.html

[文献速递]

1. **Appendicitis: Role of MRI.**

作者：Mittal MK

文献来源：*Pediatr Emerg Care.*

摘要：The diagnosis of pediatric appendicitis can be difficult, with a substantial proportion misdiagnosed based on clinical features and laboratory tests alone. Accordingly, advanced imaging with ultrasound (US), computed tomography

(CT), and/or magnetic resonance imaging has become routine for most children undergoing diagnostic evaluation for appendicitis. There is increasing interest in the use of US as the primary imaging modality and reserving CT as a secondary diagnostic modality in equivocal cases. Magnetic resonance imaging, using a rapid protocol, without contrast or sedation, has been found to be highly sensitive and specific in the evaluation of children with acute right lower quadrant pain in a number of studies. Because magnetic resonance imaging has the advantage over CT of not using contrast or ionizing radiation, it may replace CT in many instances, whether after US as part of a stepwise imaging algorithm or as a primary imaging modality. Accessibility and cost, however, limit its more widespread use currently.

链接： http://pan.ckcest.cn/rcservice//doc?doc_id=40333

2. **Tomorrow today: organ-on-a-chip advances towards clinically relevant pharmaceutical and medical in vitro models.**

作者：Rothbauer M

文献来源：*Curr Opin Biotechnol*

摘要：Organ-on-a-chip technology offers the potential to recapitulate human physiology by keeping human cells in a precisely controlled and artificial tissue-like microenvironment. The current and potential advantages of organs-on-chips over conventional cell cultures systems and animal models have captured the attention of scientists, clinicians and policymakers as well as advocacy groups in the past few years. Recent advances in tissue engineering and stem cell research are also aiding the development of clinically relevant chip-based organ and diseases models with organ level physiology for drug screening, biomedical research and personalized medicine. Here, the latest advances in organ-on-a-chip technology are reviewed and future clinical applications discussed.

链接： http://pan.ckcest.cn/rcservice//doc?doc_id=40334

3. **Evolving role of magnetic resonance techniques in primary sclerosing cholangitis.**

作者：Carew RM

文献来源：*World J Gastroenterol.*

摘要：Development of non-invasive methods to risk-stratify patients and predict clinical endpoints have been identified as one of the key research priorities in primary sclerosing cholangitis (PSC). In addition to serum and histological biomarkers, there has been much recent interest in developing imaging biomarkers that can predict disease course and clinical outcomes in PSC. Magnetic resonance imaging/magnetic resonance cholangiopancreatography (MRI/MRCP) continue to play a central role in the diagnosis and follow-up of PSC patients. Magnetic resonance (MR) techniques have undergone significant advancement over the last three decades both in MR data acquisition and interpretation. The progression from a qualitative to quantitative approach in MR acquisition techniques and data interpretation, offers the opportunity for the development of objective and reproducible imaging biomarkers that can potentially be incorporated as an additional endpoint in clinical trials. This review article will discuss how the role of MR techniques have evolved over the last three decades from emerging as an alternative diagnostic tool to endoscopic retrograde cholangiopancreatography, to being instrumental in the ongoing search for imaging biomarker of disease stage, progression and prognosis in PSC.

链接： http://pan.ckcest.cn/rcservice//doc?doc_id=40336

4. **Big data in IBD: a look into the future.**

作者：Olivera P

文献来源：*Nat Rev Gastroenterol Hepatol.*

摘要：Big data methodologies, made possible with the increasing generation and availability of digital data and enhanced analytical capabilities, have produced new insights to improve outcomes in many disciplines. Application of big data in the health-care sector is in its early stages, although the potential for leveraging underutilized data to gain a better understanding of disease and improve quality of care is enormous. Owing to the intrinsic characteristics of inflammatory bowel disease (IBD) and the management dilemmas that it imposes, the implementation of big data research strategies not only can complement current research efforts but also could represent the only way to disentangle the complexity of the disease. In this Review, we explore important potential applications of big data in IBD research, including predictive models of disease course and response to

therapy, characterization of disease heterogeneity, drug safety and development, precision medicine and cost-effectiveness of care. We also discuss the strengths and limitations of potential data sources that big data analytics could draw from in the field of IBD, including electronic health records, clinical trial data, e-health applications and genomic, transcriptomic, proteomic, metabolomic and microbiomic data.

链接： http://pan.ckcest.cn/rcservice//doc?doc_id=40335

5. **Collagen-based bioinks for hard tissue engineering applications: a comprehensive review.**

作者：Marques CF

文献来源：*J Mater Sci Mater Med*

摘要：In the last few years, additive manufacturing (AM) has been gaining great interest in the fabrication of complex structures for soft-to-hard tissues regeneration, with tailored porosity, and boosted structural, mechanical, and biological properties. 3D printing is one of the most known AM techniques in the field of biofabrication of tissues and organs. This technique opened up opportunities over the conventional ones, with the capability of creating replicable, customized, and functional structures that can ultimately promote effectively different tissues regeneration. The uppermost component of 3D printing is the bioink, i.e. a mixture of biomaterials that can also been laden with different cell types, and bioactive molecules. Important factors of the fabrication process include printing fidelity, stability, time, shear-thinning properties, mechanical strength and elasticity, as well as cell encapsulation and cell-compatible conditions. Collagen-based materials have been recognized as a promising choice to accomplish an ideal mimetic bioink for regeneration of several tissues with high cell-activating properties. This review presents the state-of-art of the current achievements on 3D printing using collagen-based materials for hard tissue engineering, particularly on the development of scaffolds for bone and cartilage repair/regeneration. The ultimate aim is to shed light on the requirements to successfully print collagen-based inks and the most relevant properties exhibited by the so fabricated scaffolds. In this regard, the adequate bioprinting parameters are addressed, as well as the main materials properties,

namely physicochemical and mechanical properties, cell compatibility and commercial availability, covering hydrogels, microcarriers and decellularized matrix components. Furthermore, the fabrication of these bioinks with and without cells used in inkjet printing, laser-assisted printing, and direct in writing technologies are also overviewed. Finally, some future perspectives of novel bioinks are given.

链接： http://pan.ckcest.cn/rcservice//doc?doc_id=40337

6. **临床医学工程技术评价的现状与未来**

作者：储呈晨

文献来源：*华西医学*

摘要：为了进一步做好医疗技术的管理,保障医疗器械的安全有效和经济性,该文从评价标准、技术性能评价、可靠性评价、临床应用评价、卫生经济评估、技术服务评价、技术成熟度和人因工程学 8 个方面介绍临床医学工程技术评价的现状与未来。临床医学工程技术评价目前尚处于起步阶段,需要加快建立各类设备评价的标准化体系和评价规范。

链接： http://pan.ckcest.cn/rcservice//doc?doc_id=40339

7. **二代基因测序数据管理和大数据平台在精准医学中的应用**

作者：武奥申

文献来源：*中国生物工程杂志*

摘要：精准医学集合了多种数据,包括组学、临床、环境和行为等,是对疾病进行个性化治疗、预防和管理的科学。随着基因测序费用的大幅下降,人们对肿瘤等疾病的认识从传统病理到分子水平的飞跃等,相关科学的发展和普及推动了精准医学的诞生和发展,将更加深远地影响着人类的健康。本文介绍了精准医学的概念、目的及应用,介绍了二代 DNA 测序技术在精准医学中的应用,认为基因组学数据、样本管理、数据质量控制标准以及数据管理平台等是实现精准医学的基础,智能化精准医疗将是来的发展方向。进行展望的同时,也认为基因组学海量数据的规模特点、各种健康应用在推动数据管理平台的发展的同时,也对其演进提出了挑战。

链接： http://pan.ckcest.cn/rcservice//doc?doc_id=40340

8. **基于知识图谱的国内生物医学工程研究可视化分析**

作者：沈同平

文献来源：*安庆师范大学学报(自然科学版)*

摘要：采用文献计量和知识图谱可视化的方法,以《中国生物医学工程学报》为研究对象,利用网络分析工具 CiteSpace 对 1982—2017 年该杂志发表的 3 235 篇中文文献的载文量、研究机构、基金资助和关键词等进行可视化分析。研究表明,生物医学工程领域热点和学术前沿包括生物材料、生物力学、医学图像和生物信号等 4 个方面,以期对生物医学工程相关研究和实践创新提供借鉴和参考。

链接： http://pan.ckcest.cn/rcservice//doc?doc_id=40338

9. **大数据:医学科学的机遇与挑战**

作者：赵一菊

文献来源：

摘要：大数据已经渗透到医学科学的每一个领域。面对着"大数据时代"到来的挑战,临床医生、公共卫生医生、卫生管理人员和医学院校教师无不感到困惑、茫然和手足无措。其实大数据在医疗与公共卫生领域的存在和应用已有时日,如公共卫生监测网络,传染病报告系统和大型队列研究资料库所储存的流行病学数据,以及基于电子健康档案和电子病历的临床数据。通过互联网、人工智能、分布式数据库、可扩展的存储系统和云计算平台实现数据全集成、全过程、全周期、智能化和多视图。

链接： http://pan.ckcest.cn/rcservice//doc?doc_id=40341

10. **PBL 在基础医学整合教学中的改革及实践**

作者：王瑾

文献来源：*基础医学教育*

摘要：基于问题式的学习强调将学习与问题挂钩,培养学生解决问题的技能以及自主学习和终生学习的能力。文章以临床医学专业整合教学为切入点,并在此基础上进行 PBL 教学的实践,对实践教学过程中存在的问题进行了分

析,并提出完善 PBL 教学的一些改革设想,以期培养综合专业素养及实践应用能力更强的医学人才。

链接： http://pan.ckcest.cn/rcservice//doc?doc_id=40342

[研究报告]

1. **健康医疗大数据白皮书**

发布源：赛迪顾问

发布时间:2018 年

摘要：随着新兴技术的日益成熟、海量数据的管理、分析及应用，以及智能化的快速发展，大健康产业正在面临巨大改变。在大数据技术的应用下，传统的健康医疗正在以新的形态焕发生机，健康管理、基因测序、智能养老等全生命周期环节都有大数据技术的落地和应用，并发生着革命性的改变。

链接：http://pan.ckcest.cn/rcservice//doc?doc_id=41758

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