Evaluation

73204

HR the Silent Partner: Building Teams & Tools for Better Recruitment and Hiring of Clinical Research Professionals

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ABSTRACT IMPACT: Improved non-biased matching of clinical research professionals to PI needs will accelerate time to active project engagement for new hires. OBJECTIVES/GOALS: An ongoing challenge for HR recruiters when matching applicants to open job positions is the time-consuming screening effort, which relies on imprecise semantic searching. We propose building a precision-based matching tool using Natural Language Processing to automate the accurate and non-biased identification of suitable job candidates. METHODS/STUDY POPULATION: We conducted 30-45' interviews with HR administration/recruitment specialists to delineate the recruitment and hiring process used to match CRC resumes to job descriptions (n=7). Next, CRC applicant resumes were evaluated by experts, first by independent review, followed by consensus and assignment of a final rating, 0= not qualified; 1= CRC1; 2= CRC2; 3= CRC3; 4= CRC4. Guidelines evolved after reviewing 6 batches of 50 unique resumes (300 total) and were based on applicant qualifications & experiences by job level, CRC 1-4. Using final guidelines an additional 3,145 resumes were rated. For uniform input into the NLP model, resume formats were converted and text contents extracted into multiple sections, i.e., education, professional experiences, etc. RESULTS/ANTICIPATED RESULTS: Guideline development: Rater agreement improved over time with poor agreement when no guidelines were present (.161- Kappa) to good agreement for final guidelines (.608- Kappa). Spearman's rho correlation between guideline iterations and Kappa is large and positive (rho 0.886) indicating significant rater agreement. NLP Model: Resume to job description matching indicated a third of applications were qualified, a third overqualified, and a third underqualified, suggesting the majority of applicants were unable to identify their 'best fit' by job level. Our NLP model matched the candidate resume to CRC level with 73.3% accuracy; and achieved 79.2% accuracy when matching the applicant resume to the CRC job description. Refinement of the NLP Model is ongoing. DISCUSSION/SIGNIFICANCE OF FINDINGS: A precision-based NLP matching tool will improve applicant targeting for the hire of great, qualified candidates. Improved applicant to job matching offers several advantages, i.e., reduced bias with greater diversity and inclusion; reduced time-to-hire; ability to anticipate training needs; and a reduced time to active project engagement.

Precision Medicine

37606

Enhanced radiation therapy using chlorin-e6 conjugated gold nanoparticles*

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ABSTRACT IMPACT: Improved radiation treatment will yield higher doses at the tumor site, while reducing damage to healthy tissue, which will improve clinical outcomes. OBJECTIVES/GOALS: Development of gold nanoparticles covalently linked to a photosensitizer for use to enhance radiation therapy. The particles will be thoroughly characterized and the mechanism uncovered. The efficacy of these particles will be tested in a murine system. METHODS/STUDY POPULATION: Gold nanoparticles were synthesized and coated with amine-terminated poly(ethylene) glycol then covalently conjugated to chlorin e6, a known, FDA approved photosensitizer. The system was characterized using UV-Vis spectroscopy, transmission electron microscopy, and nanoparticle tracking analysis. The generation of reactive oxygen species following X-irradiation was measured. Enhanced cell killing was measured clonogenically and in vivo efficacy and tumor pathology was assessed in a murine system. Further studies will determine the optimum combination of particle shape, photosensitizer structure, and ratio of components, as well as the optimal dosing schedule. RESULTS/ANTICIPATED RESULTS: Conjugation of the particle to the photosensitizer was successfully achieved, and the molecule was detectable by UV-Vis spectroscopy. TEM and NTA showed no aggregation of the particles, and an increase in reactive oxygen species generation was observed. The conjugates significantly increased cell killing during radiation treatment, while neither the particle alone or the photosensitizer significantly affected clonogenic survival at the same concentrations. Pathology of breast tumors grown in immunocompetent mice showed a significant increase in necrotic tissue following a single 20 gy treatment when the conjugate was present. DISCUSSION/SIGNIFICANCE OF FINDINGS: Radiation therapy is widely used clinically and it is a highly localized form of treatment. However, the total dose of radiation is limited largely to prevent injury to adjacent normal tissue. This conjugate has the potential to increase the effective dose in the tumor thereby reducing damage to healthy tissue and providing a more effective therapy.

95349

T1-T4 in 3 (Minutes)

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ABSTRACT IMPACT: The purpose of the T1-T4 in 3 Minutes program is to improve trainees' capacity for communication of complex to a non-scientific audience as well as to ensure that our community stakeholders have access to, and understanding of, ongoing clinical and translation research OBJECTIVES/GOALS: The T1-T4 in 3 Program: o Increases knowledge of research across institution; o Increases capacity of trainees to convey complex science to lay audiences, funders, colleagues, and the media; o Increases health and scientific literacy; o Bridges gaps between trainees and potential entrepreneurial mentors METHODS/STUDY POPULATION: T1-T4 in 3 (Minutes) is an adaptation of the University of Queensland's Three Minute Thesis competition in which PhD students present their thesis in 3 minutes or less to a lay audience. The competition enables them to cogently communicate their ideas and research findings to a non-specialist audience. Our adapted version, T1-T4 in 3, requires a presentation in three minutes or less to a lay audience, but rather than a thesis, the topics are on trainees' research, and in this particular case, an idea for a commercial venture. The competition provides awards for the first- and second-best projects as determined by a panel of judges, and a 'people's choice' award determined by a lay audience. RESULTS/ANTICIPATED