### Post Specification 035277

<table>
<thead>
<tr>
<th>Post Title:</th>
<th>Research Fellow (Post-Doc Bioinformatician) TILDA</th>
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<tbody>
<tr>
<td>Post Status:</td>
<td>Specific Purpose contract</td>
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<tr>
<td>Department/Faculty:</td>
<td>TILDA, Department of Medical Gerontology, Trinity College Dublin, the University of Dublin</td>
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<tr>
<td>Location:</td>
<td>The Irish Longitudinal Study on Ageing (TILDA), Trinity College Dublin, the University of Dublin. Mercer’s Institute for Successful Ageing (MISA) St. James’s Hospital, Dublin.</td>
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<tr>
<td>Reports to:</td>
<td>Professor Rose Anne Kenny</td>
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<tr>
<td>Salary:</td>
<td>Appointment will be made on the SFI Team Member Budget Scales, Level 2B to Level 3, with annual single-point increment (€46,442- €61,422), dependent on experience.</td>
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<tr>
<td>Hours of Work:</td>
<td>37 hours per week</td>
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<tr>
<td>Closing Date:</td>
<td>12 Noon (Irish Standard Time), 15 OCTOBER 2021</td>
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The successful applicant will be expected to take up post as soon as possible.

### Post Summary

The Irish Longitudinal Study on Ageing (TILDA) is seeking a highly motivated and experienced post-doctoral researcher to work on a prestigious multinational inter-disciplinary epigenomics project. This project initiative ‘Social Circumstances and Epigenomics Promoting Health in Three Countries’ saw researchers from the United States, Northern Ireland, and the Republic of Ireland collaborate to submit a single, joint “tri-partite” proposal to the US National Institutes of Health (NIH). The award will strengthen international research to examine how social circumstances and life challenges impact the epigenome and health in later years and is supported by Science Foundation Ireland (SFI) and the Health Research Board (HRB).

This unique collaboration will examine social, economic, health and epigenomic data from three national studies of ageing in the family of Health and Retirement studies - the US Health...
The successful candidate will be expected to lead on the development of analysis pipelines for the epigenomic data generated from DNA samples profiled using Illumina EPIC 850k arrays for the TILDA component of this study. This will include: contributing to study design and DNA sample selection; producing longitudinal DNA methylation (DNAm) datasets; performing epigenome-wide association studies and generating existing and novel epigenetic clocks using cross-sectional and longitudinal epigenomic data coupled with extensive data on socioeconomic factors and age-related health outcomes. The successful candidate will also have the unique opportunity to collaborate closely with world leading researchers in ageing and epigenomic research from the United States, Northern Ireland, and Trinity College Dublin.

This position provides an excellent opportunity for a highly motivated individual with proven experience in the analysis and interpretation of epigenomic and health data, and a track record of academic research output evidenced by peer-reviewed publications. The successful candidate will report to Professor Rose Anne Kenny, Principal Investigator, TILDA and to Dr Aisling O’Halloran and Prof Cathal McCrory, co-investigators on the award.

Background to the Post

Social Circumstances and Epigenomics: Promoting Health in Three Countries Project

This project is funded through the US-Ireland Research and Development Partnership supporting research in each country: United States (US), Republic of Ireland (RoI) and Northern Ireland (NI). The project will analyse existing social and epigenomic data from three national studies of ageing in the family of Health and Retirement studies (the US Health and Retirement Study (HRS); the Northern Ireland Cohort for the Longitudinal Study of Ageing (NICOLA); and the Irish Longitudinal Study on Ageing (TILDA)) and produce longitudinal epigenomic data for each of the three studies. Comparative analyses based on these data will address central questions about how life circumstances in both childhood and adulthood affect epigenetic change and how different historical and life-course exposures in these countries may result in differential patterns of associations. The project will also examine how epigenetic changes in turn are associated with health after 50 years of age. The main aims of the project are:

- Produce longitudinal DNA methylation (DNAm) data on a representative, population-based sample of adults in the United States, RoI and NI over age 50.
• Compare associations of indicators of socioeconomic status (SES) and DNAm profiles and changes in those profiles (ΔDNAm) using harmonized data in the US, RoI and NI.
• Assess how exposures to social adversity and potential buffering/resilience factors are associated with DNAm profiles and ΔDNAm in the US, RoI and NI.
• Examine the extent to which DNAm profiles and ΔDNAm predict later life health and mortality in three countries.

The Irish Longitudinal Study on Ageing
The Irish Longitudinal Study on Ageing (TILDA) is the largest and most ambitious study of ageing ever conducted in Ireland and is collecting detailed information on all aspects of the lives of people aged 50 years and over in a nationally representative sample.

The first five waves of data collection are complete, and the sixth wave is currently in the field. The study is closely harmonized with other international longitudinal studies such as the English Longitudinal Study of Ageing (ELSA) and the US Health and Retirement Study (HRS).

At baseline Wave 1 (2009-2011), 8,175 individuals aged 50 and over and 329 partners younger than 50 were interviewed and were invited to participate in a health assessment including world-leading cutting edge cardiovascular investigations, a comprehensive battery of cognitive tests, eye examinations and analysis of gait speed under different conditions. Data collected during the TILDA health assessments has been used to influence health policy and practice in Ireland. For example, the collection of blood pressure data highlighted that 64% of community-dwelling adults aged 50 and over have hypertension with almost half being unaware that they have the condition; two-thirds of adults with atrial fibrillation, a leading contributor to stroke, heart and disease and dementia, are either undiagnosed or mistreated – this data informed an awareness campaign by the Irish Heart Foundation and was used by the HSE to develop its National Clinical Guidelines and recommendations for the care of people with stroke; finally, walking speed data highlighted that two-thirds of adults aged 65 and over would have difficulty crossing the road at pedestrian light crossings, leading to a collaboration with Dublin City Council to review the pedestrian light settings.

The domains captured from the TILDA study reflect the multi-factorial causes of successful ageing and their interactions. These include but are not limited to:
• Health (physical, cognitive, and mental health, disability, health behaviour, service needs and usage)
• Biology (genetics, epigenetics, molecular and physiological biomarkers)
• Social relationships (quality of relationships and frequency of contacts, formal and informal care, social participation).
• Wellbeing (quality of life, loneliness, perceptions of ageing)
• Economics (wealth and income, pensions, employment, financial transfers),

The diversity of the TILDA research group reflects the multi-disciplinary nature of the study and includes world-leading researchers in geriatrics, psychiatry, psychology, social science, bioengineering, biostatistics, economics, and health care management. There are over forty full time members in the current TILDA team which is comprised of researchers and administrative staff. TILDA has established a wide network of collaborators both within Ireland and internationally which ensures that TILDA remains on the cutting edge of research into ageing.

Further Information

Informal enquiries about this post should be made to TILDA Biobank Manager and Senior Research Fellow Dr Aisling O’Halloran at aiohallo@tcd.ie

Standard Duties and Responsibilities of the Post

• Conduct bioinformatic and statistical analyses of genome-wide epigenomic data coupled with socio-economic and health data to determine cross-sectional and longitudinal relationships in TILDA.
• Collaborate with researchers from the United States and Northern Ireland on this project to develop coordinated approaches to bioinformatic and statistical analyses of genome-wide epigenomics data.
• Prepare findings for publication in academic papers.
• Present findings to relevant inter-disciplinary audiences at national and international conferences, scientific meetings, and seminars.
• Identify and develop funding applications for further studies that may be necessary from hypotheses developed during the course of this research project.
• Seek innovative opportunities for knowledge exchange and dissemination of results.
• Supervision of PhD students.
• Other responsibilities appropriate to the role of post-doctoral researcher within the academic department as required.

Funding Information
This research programme is funded by Science Foundation Ireland (SFI) under the US-Ireland R&D Partnership Programme, awarded to Principal Investigator, Prof. Rose Anne Kenny.

Person Specification

Qualifications
A PhD in Computational Biology, Bioinformatics, Genomics or Bioengineering or a closely related discipline is required.

Knowledge & Experience (Essential & Desirable)
• At least 3 years of proven research experience in bioinformatics and the analyses of ‘omic’ data coupled with socio-economic and/or health data.
• Proficiency in programming with R, Python, UNIX/shell scripts as well as the ability to build new tailored pipelines.
• Strong background in quantitative statistical analysis of large-scale cross-sectional and longitudinal datasets.
• Good knowledge of the basic concepts of epidemiology.
• Working knowledge of statistical and data analysis software packages e.g. SPSS, STATA, R, Mplus.
• Candidates must have a strong publication record.
• Ability to work on own initiative but also to work as an active and efficient team member when required.
• Experience with DNA methylation data, epigenome-wide association studies (EWAS) and generation of epigenetic clocks. (desirable)
• Experience in a similar academic and research environment (desirable)
• Knowledge of College structures and procedures would be an advantage (desirable)

Skills & Competencies
• Strong organisational skills, ability to judge priorities, multitask and work to tight deadlines.
• Highly self-motivated, able to work independently and organise own workload.
• Ability to work accurately, with attention to detail.
• Excellent communication and interpersonal skills: ability to work with a large multidisciplinary team, be able to integrate and become an effective team member as quickly as possible and provide feedback on the assigned tasks when required.
• Documentation and writing skills: deliver the necessary documentation and reports in a clear and concise manner which is understandable to both non-technical and research staff.
• A flexible approach and willingness to undertake other duties as necessary.

Application Information

Applicants should submit a full Curriculum Vitae and Cover Letter to include the names and contact details of 3 referees (including email addresses), to:

Name: Keith Brennan
Email Address: brennk10@tcd.ie

Further Information for Applicants

<table>
<thead>
<tr>
<th>URL Link to Area</th>
<th><a href="http://www.tcd.ie">www.tcd.ie</a></th>
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<tbody>
<tr>
<td>URL Link to Human Resources</td>
<td><a href="https://www.tcd.ie/hr/">https://www.tcd.ie/hr/</a></td>
</tr>
<tr>
<td>URL Link to TILDA</td>
<td><a href="http://www.tilda.ie">www.tilda.ie</a></td>
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Trinity College Dublin, the University of Dublin

Trinity is Ireland’s leading university and is ranked 108th in the world (QS World University Rankings 2020). Founded in 1592, the University is steeped in history with a reputation for excellence in education, research, and innovation.

Located on an iconic campus in the heart of Dublin’s city centre, Trinity has 18,000 undergraduate and postgraduate students across our three faculties – Arts, Humanities, and Social Sciences; Engineering, Mathematics and Science; and Health Sciences.

Trinity is ranked as the 17th most international university in the world (Times Higher Education Rankings 2020) and has students and staff from over 120 countries.

The pursuit of excellence through research and scholarship is at the heart of a Trinity education, and our researchers have an outstanding publication record and strong record of grant success. Trinity has developed 19 broad-based multidisciplinary research themes that cut across disciplines and facilitate world-leading research and collaboration within the University and with colleagues around the world. Trinity is also home to 5 leading flagship research institutes:

- Trinity Biomedical Sciences Institute (TBSI)
- Trinity College Institute of Neuroscience (TCIN)
- Trinity Translational Medical Institute (TTMI)
- Trinity Long Room Hub Arts and Humanities Research Institute (TLRH)
- Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN)

Trinity is the top-ranked European university for producing entrepreneurs for the past five successive years and Europe’s only representative in the world’s top-50 universities (Pitchbook Universities Report).

Trinity is home to the famous Old Library and to the historic Book of Kells as well as other internationally significant holdings in manuscripts, maps, and early printed material. The Trinity Library is a legal deposit library, granting the University the right to claim a copy of
every book published in Ireland and the UK. At present, the Library’s holdings span approximately 6.5 million printed items, 400,000 e-books and 150,000 e-journals.

With over 120,000 alumni, Trinity’s tradition of independent intellectual inquiry has produced some of the world’s finest, most original minds including the writers Oscar Wilde and Samuel Beckett (Nobel laureates), the mathematician William Rowan Hamilton and the physicist Ernest Walton (Nobel laureate), the political thinker Edmund Burke, and the former President of Ireland Mary Robinson. This tradition finds expression today in a campus culture of scholarship, innovation, creativity, entrepreneurship, and dedication to societal reform.

**Rankings**
Trinity is the top ranked university in Ireland and ranked 108th in the world (QS World University Rankings 2020). Trinity ranks in the top 50 in the world on 6 subjects and in the top 100 in 20 subjects (QS World University Rankings by Subject 2019). Full details are available at: www.tcd.ie/research/about/rankings.
The Selection Process in Trinity

The Selection Committee (Interview Panel) may include members of the Academic and Administrative community together with External Assessor(s) who are expert in the area. Applications will be acknowledged by email. If you do not receive confirmation of receipt within 1 day of submitting your application online, please contact the named Recruitment Partner on the job specification immediately and prior to the closing date/time.

Given the degree of co-ordination and planning to have a Selection Committee available on the specified date, the University regrets that it may not be in a position to offer alternate selection dates. Where candidates are unavailable, reserves may be drawn from a shortlist. Outcomes of interviews are notified in writing to candidates and are issued no later than 5 working days following the selection day.

In some instances the Selection Committee may avail of telephone or video conferencing. The University’s selection methods may consist of any or all of the following: Interviews, Presentations, Psychometric Testing, References and Situational Exercises.

It is the policy of the University to conduct pre-employment medical screening/full pre-employment medicals. Information supplied by candidates in their application (Cover Letter and CV) will be used to shortlist for interview.

Applications from non-EEA citizens are welcomed. However, eligibility is determined by the Department of Business, Enterprise and Innovation and further information on the Highly Skills Eligible Occupations List is set out in Schedule 3 of the Regulations https://dbei.gov.ie/en/What-We-Do/Workplace-and-Skills/Employment-Permits/Employment-Permit-Eligibility/Highly-Skilled-Eligible-Occupations-List/ and the Ineligible Categories of Employment are set out in Schedule 4 of the Regulations https://dbei.gov.ie/en/What-We-Do/Workplace-and-Skills/Employment-Permits/Employment-Permit-Eligibility/Ineligible-Categories-of-Employment/. Non-EEA candidates should note that the onus is on them to secure a visa to travel to Ireland prior to interview. Non-EEA candidates should also be aware that even if successful at interview, an appointment to the post is contingent on the securing of an employment permit.
Equal Opportunities Policy

Trinity is an equal opportunities employer and is committed to employment policies, procedures and practices which do not discriminate on grounds such as gender, civil status, family status, age, disability, race, religious belief, sexual orientation or membership of the travelling community. On that basis we encourage and welcome talented people from all backgrounds to join our staff community. Trinity’s Diversity Statement can be viewed in full at https://www.tcd.ie/diversity-inclusion/diversity-statement.

Pension Entitlements

This is a pensionable position and the provisions of the Public Service Superannuation (Miscellaneous Provisions) Act 2004 will apply in relation to retirement age for pension purposes. Details of the relevant Pension Scheme will be provided to the successful applicant.

Applicants should note that they will be required to complete a Pre-Employment Declaration to confirm whether or not they have previously availed of an Irish Public Service Scheme of incentivised early retirement or enhanced redundancy payment. Applicants will also be required to declare any entitlements to a Public Service pension benefit (in payment or preserved) from any other Irish Public Service employment.

Applicants formerly employed by the Irish Public Service that may previously have availed of an Irish Public Service Scheme of Incentivised early retirement or enhanced redundancy payment should ensure that they are not precluded from re-engagement in the Irish Public Service under the terms of such Schemes. Such queries should be directed to an applicant’s former Irish Public Service Employer in the first instance.
Application Procedure

Applicants should submit a Cover Letter and full Curriculum Vitae to include the names and contact details of 3 referees (including email addresses), to:

Name: Keith Brennan
Email Address: brennk10@tcd.ie