Predicting suicidal behavior by an accurate monitoring of RNA editing biomarkers in blood samples

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Introduction
- RNA editing fine tunes neural function at the synaptic level
- A key epigenetic mechanism modified by pathology and pharmacology
- Alcediag developed a unique proprietary RNA editing platform for an improved operational efficiency (NGS)
- Epitranscriptomic biomarkers emerge as diagnostic tools
- Alcediag tests evaluate suicide risk in depressed patients

Study population
- Clinics
  - Group of Affective Controls (AC): depressed without history of suicide (n=18)
  - Group of Suicide Attempters (SA): depressed with history of suicide (n=20)
  - Multicentric recruitment: CHU Montpellier (P. Courtet) and Hospital Universitario Central de Asturias Oviedo (P. Sàiz)
  - Depression scales (MADRS, Hamilton, BDI,...)
- Blood analysis - PAXgene
  - Gene expressions (ADARs, PDE8A)
  - RNA editing modifications (PDE8A)

Gene expression and RNA editing
(A). Expression levels of ADARs and PDE8A in white blood cells of Affective Controls (AC) and Suicide Attempters (SA) populations. (B) Relative proportion of PDE8A mRNA editing per site.

EDITDIAG® performances
- Specificity: 89%
- Sensitivity: 95%
- PPV: 90%
- NPV: 94%

Diagnostic performances using mROC approach

Key take home
- EDITDIAG®, based on RNA editing-related biomarkers, evaluate suicide risk with high sensitivity and specificity
- EDITDIAG® blood test for diagnosis companion test, patient stratification or patient monitoring

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