**Summary of Molecular Tracer and Related Classes**

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1. **‘molecular tracer role’**
   * **Definition :** “a reagent role inhering in a molecular entity intended to associate with some molecular target to serve as a proxy for the presence, abundance, or location of this target in a detection of molecular tracer assay.”
   * **Equivalent Class Axioms**:
     + inheres\_in some ‘molecular entity’
     + is\_realized\_by some ‘detection of molecular tracer assay’
2. **'molecular tracer'**
   * **Definition :** “a molecular entity intended to associate with some molecular target to serve as a proxy for the presence, abundance, or location of this target in a detection of molecular tracer assay.”
   * **Equivalent Class Axioms**:
     + ‘molecular entity’ and has\_role some ‘molecular tracer role’
   * **Related classes requiring update:**
     + ‘label role’ and its children (‘radiolabel role’, ‘dye role’).
       - these classes will be obsoleted? Or adjusted to reflect changes proposed here? (see ReO model)

Note:

1. **'detection of molecular tracer assay'**
   * **Definition :** “an assay that detects the presence or a quality of a molecular tracer which is a proxy for the detection of the molecular target to which the tracer is attached”
   * **Equivalent Class Axioms**:
     + Option 1: assay and (realizes some ‘molecular tracer role’)
     + Option 2: assay and (has\_specified\_input some ‘molecular tracer-labeled material’) and (has\_specified\_output some (‘measurement datum’ and (is\_about some 'molecular tracer- labeled material’))
     + Or, some combination of the above as eq and/or super class axioms
   * **Superclass Axioms:**
     + achieves\_planned\_objective some 'assay objective'

1. **'molecular tracer-labeled material'**
   * **Definition:** “a material entity created through an addition of molecular tracer process, that contains a molecular tracer *to* allow for the detection of the molecular target of this tracer in a detection of molecular tracer assay.”
   * **Equivalent Class Axioms:**
     + material entity and (is\_specified\_output\_of some ‘addition of molecular tracer’) and

(has\_part some ‘molecular tracer’)

* + **Related classes requiring update:**

- labeled specimen and its children

- labeled oligonucleotide

1. **'addition of molecular tracer'**
   * **Definition:** “a material processing technique that adds a molecular tracer to some input material entity, to allow detection of the molecular target of this tracer in a detection of molecular tracer assay.
   * **Equivalent Class Axioms**:
     + material processing
     + has\_specified\_input some ‘target of material addition’
     + has\_specified\_input some ‘molecular tracer’
     + has\_specified\_output some 'molecular tracer-labeled material'
   * **Related classes requiring update:**
     + specific labeling, non-specific labeling, random-primed DNA labeling

1. **'molecular tracer target role'** *(a role proposed to be used in more precisely modeling the tracer classes above, by allowing us to specify the molecular entity that is part of the tracer-labeled material and is specifically recognized\_by the tracer)*
   * **Definition:** “a role inhering in a molecular entity that is *(is intended to be)* specifically recognized and bound by a molecular tracer during some addition of molecular tracer technique.”
   * **Superclass Axoims:**
     + ‘target of material addition role’
     + inheres\_in some ‘molecular entity’
     + realized\_by some ‘addition of molecular tracer’