



# A Taxonomy of Omics

**DaCCoTA**  
DAKOTA COMMUNITY COLLABORATIVE  
ON TRANSLATIONAL ACTIVITY

Dr. Mark Williamson  
Biostatistics, Epidemiology,  
and Research Design Core



# Introduction

**Goal:** View a nearly exhaustive groupings of omics

**Definitions:**

-ome: totality of X

-omics: study of the totality of X

*-genomics: study of the totality of a genome*

# Methods

- ⇨ Searched resources
  - ⇨ infographics
  - ⇨ Wikipedia (omics, List\_of\_omics\_topics\_in\_biology)
  - ⇨ genomicglossaries.com
- ⇨ Downloaded abstracts of all PubMed papers when searching 'omics'
  - ⇨ Close to 30K, so had to split into 3 sections by publication date
  - ⇨ Ran code to pull out instances of 'omics' using Python and made into a term dictionary (removed obvious errors and kept terms with counts of 3 or more)
  - ⇨ Manual search to remove spurious terms (company names, software, spelling errors)
  - ⇨ Went through each term and found short description (PubMed, Wikipedia, etc.)
  - ⇨ Further cut terms that didn't have good definition or were still spurious
- ⇨ Final list contained **255** terms

# Disclaimer

## Badomics words and the power and peril of the ome-meme

*“Genomics is a wonderful topic. And it has great potential value. But adding “ome” or “omics” onto some term does not suddenly make it “genomic-y”. The power of genomics does not simply transfer with a suffix. In addition, new concepts do not need to latch onto the ome-meme if they are strong and interesting in and of themselves. Comparisons to genomics can be very useful, but including genomics in some way in the term itself is potentially unwise.”*

-Jonathan A Eisen

**Table 7.9186 The good, the bad and the ugly**

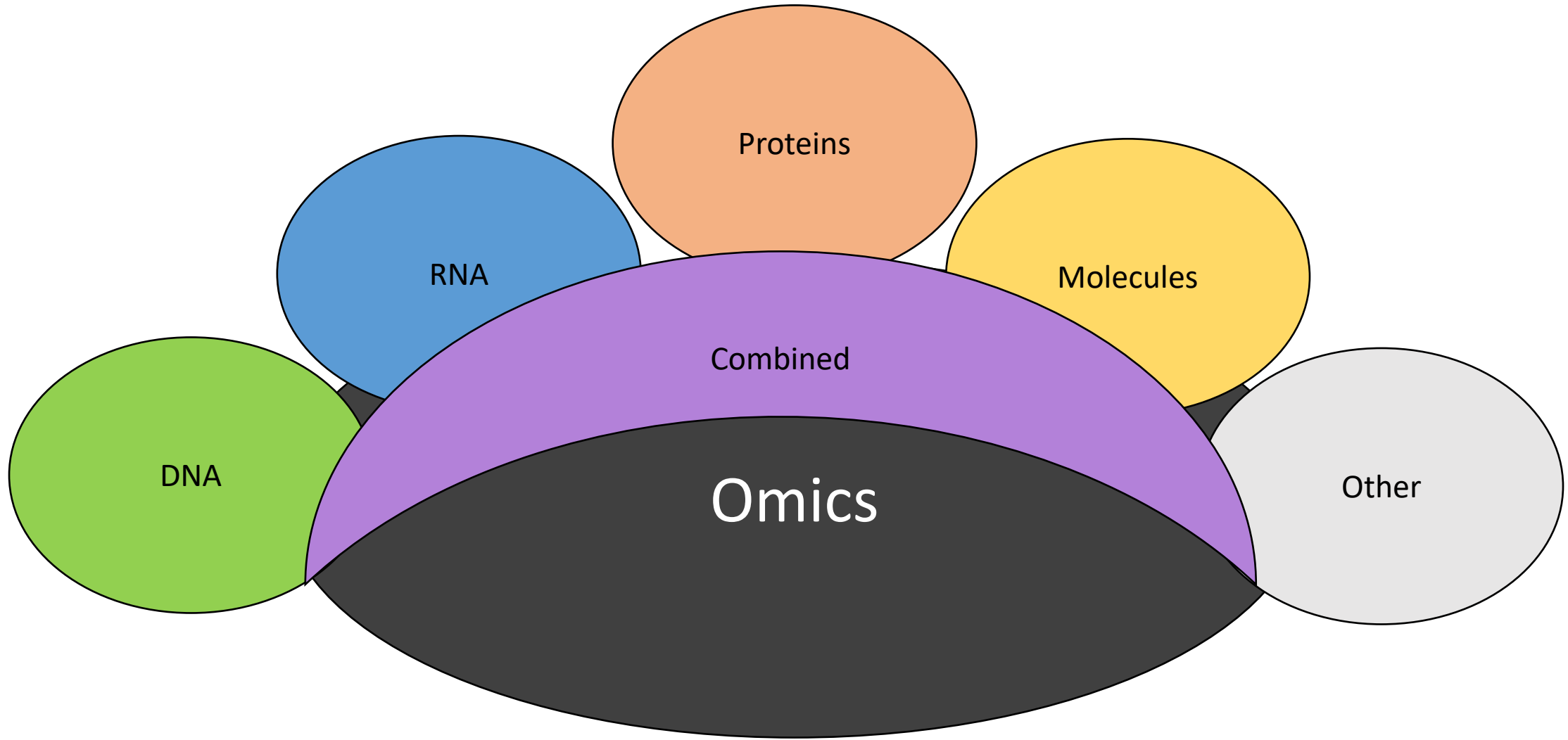
From: [Big biology: The 'omes puzzle](#)

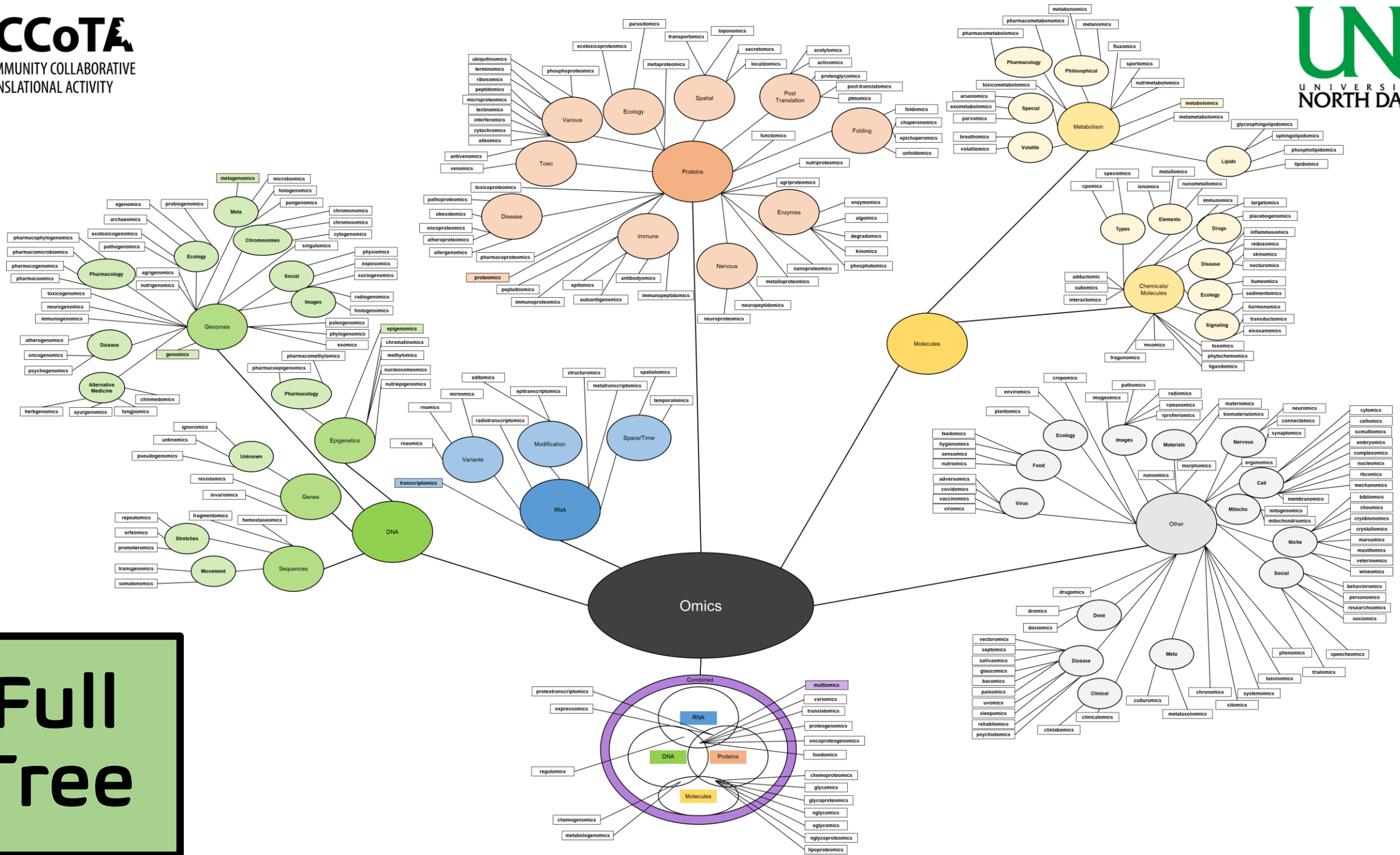
Goodome	Badome
<b>Encapsulates a new focus</b> (Interactome: all interactions between biomolecules)	<b>Renames existing field</b> (Nutriome: study of nutrients)
<b>Refers to a comprehensive collection</b> (Transcriptome: everything transcribed from DNA to RNA)	<b>Limited in scope</b> (Museome: sequenced DNA from objects in museum archives)
<b>Easy to say</b> (Phenome: comprehensive physical characteristics of an organism)	<b>Unpronounceable</b> (tRNome: collection of transfer RNAs)
<b>Easy to understand</b> (Lipidome: all an organism's fatty molecules)	<b>Obscure</b> (Predatasome: genes used by predatory proteobacteria while invading other bacteria)

Thanks to Jonathan Eisen, Mick Watson and Alexa McCray

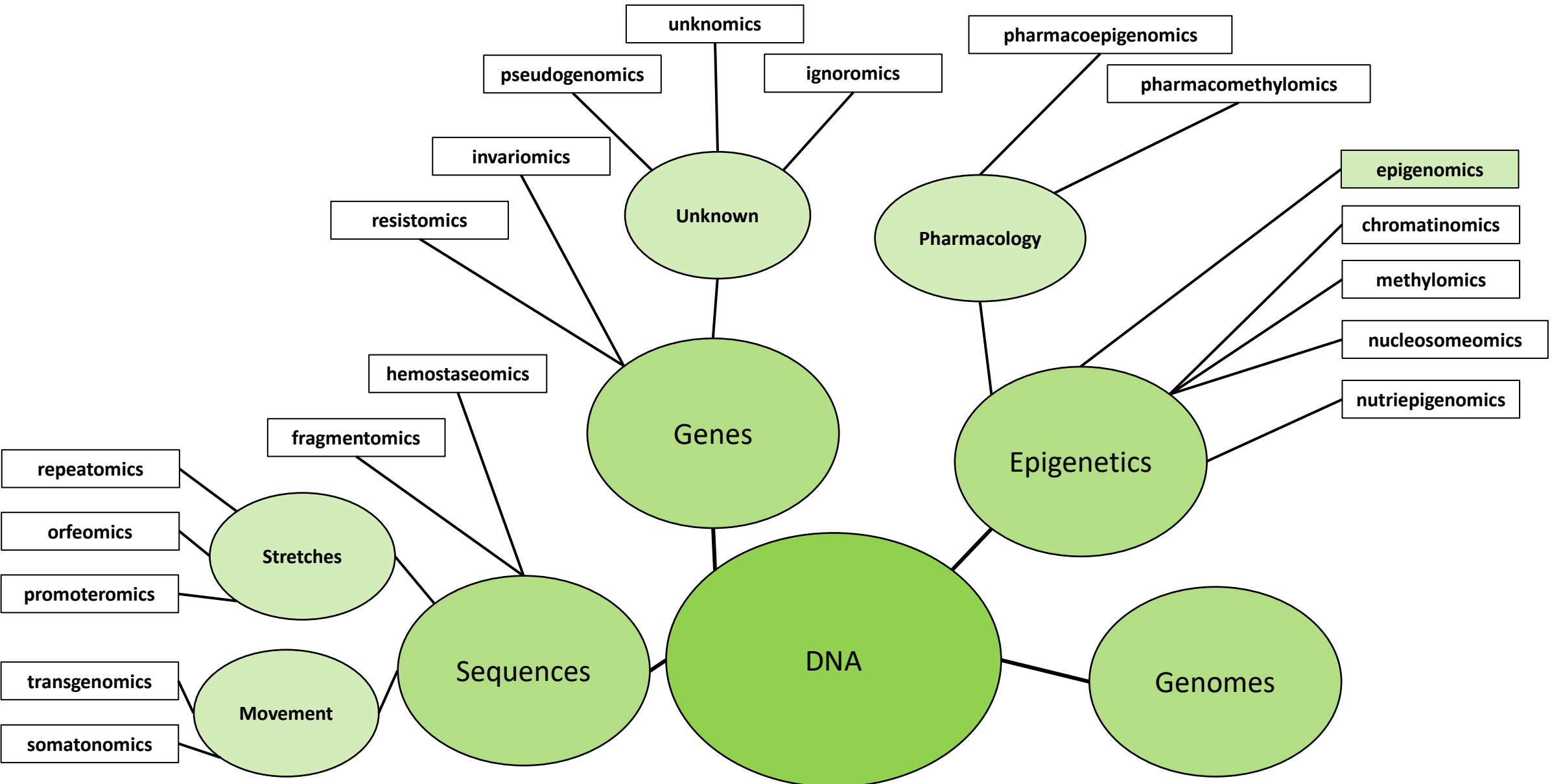
Does your 'ome meet the criteria? <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3617454/>

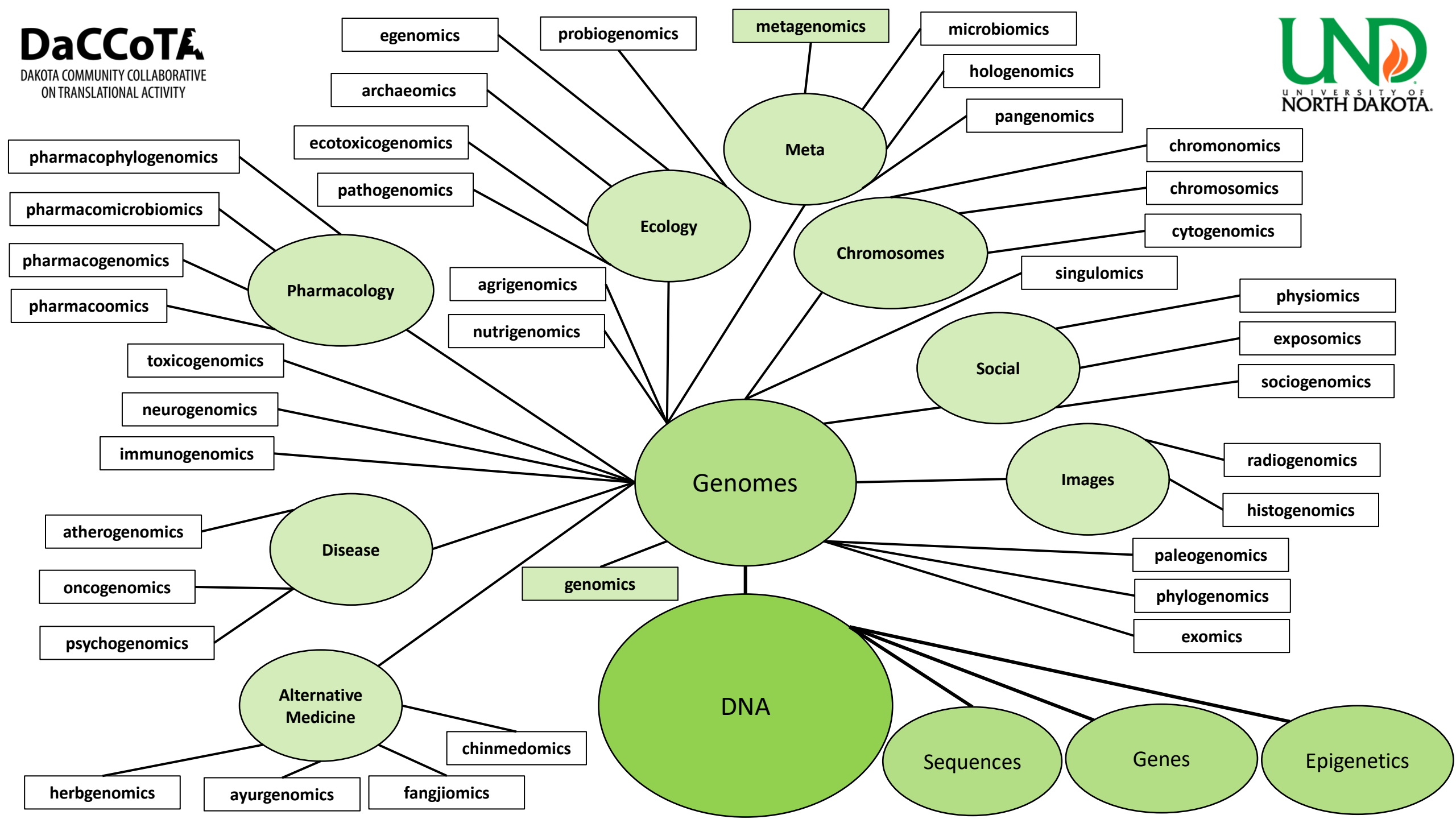
# Major Groupings



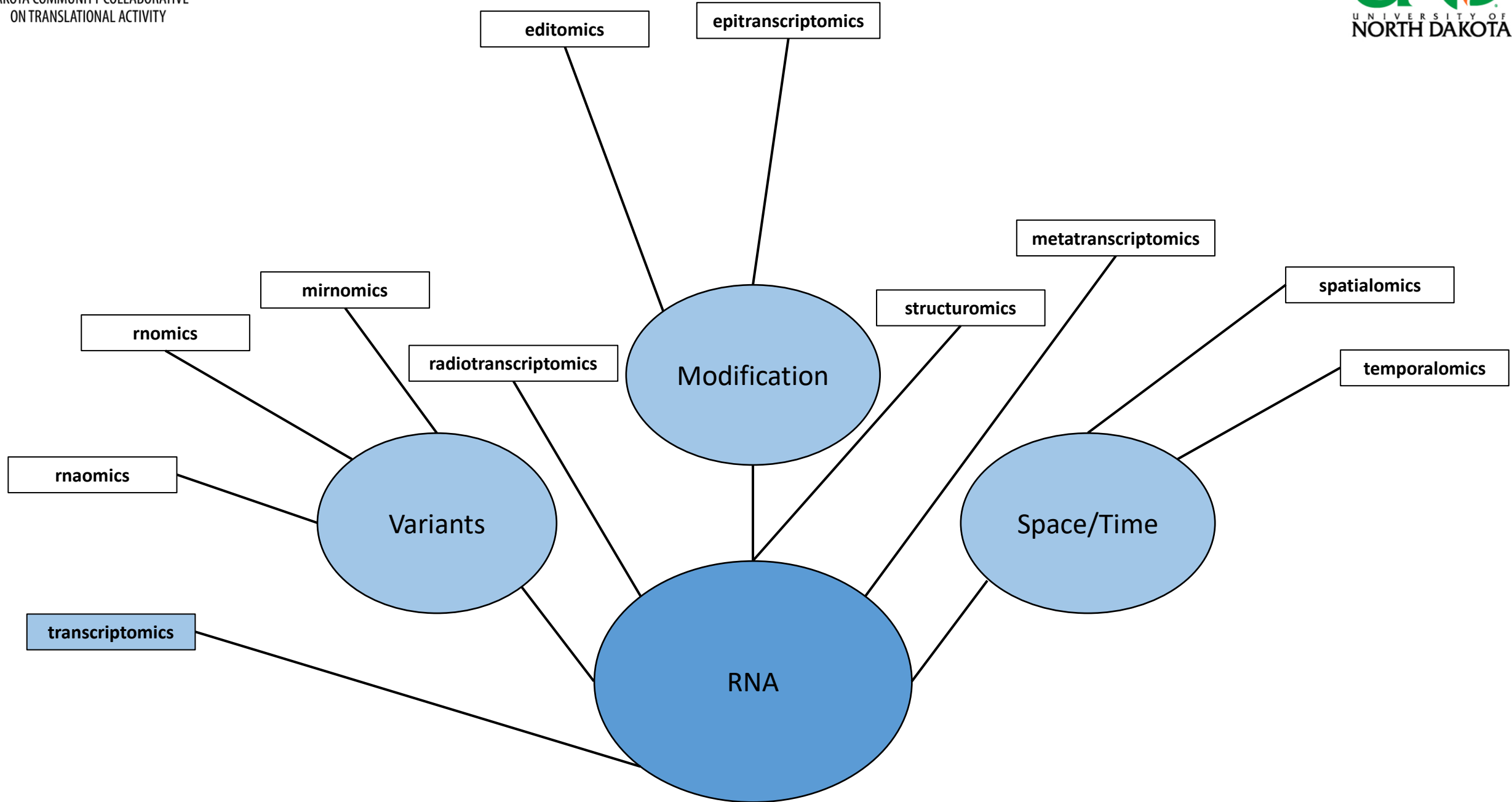


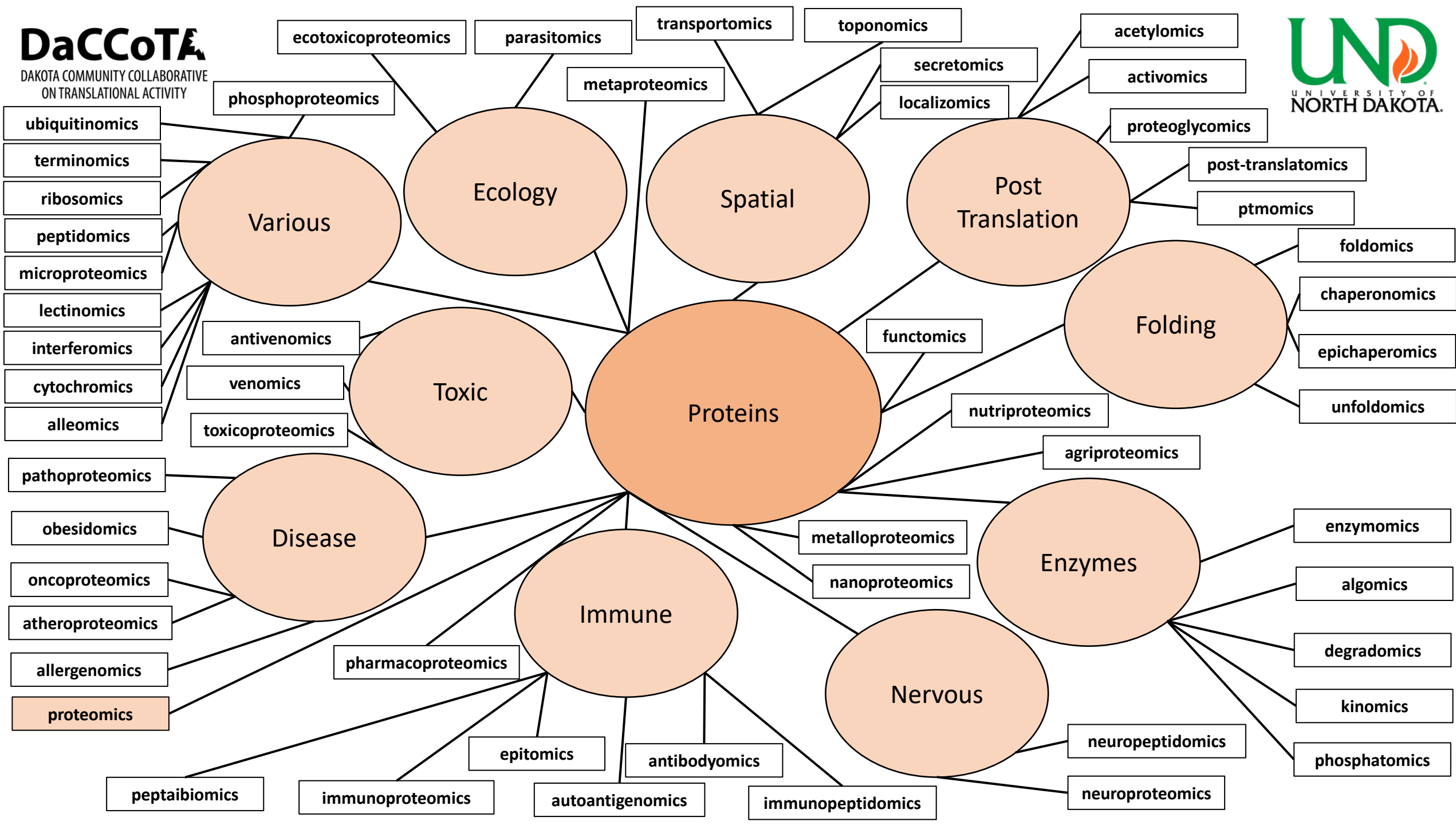
**Full Tree**

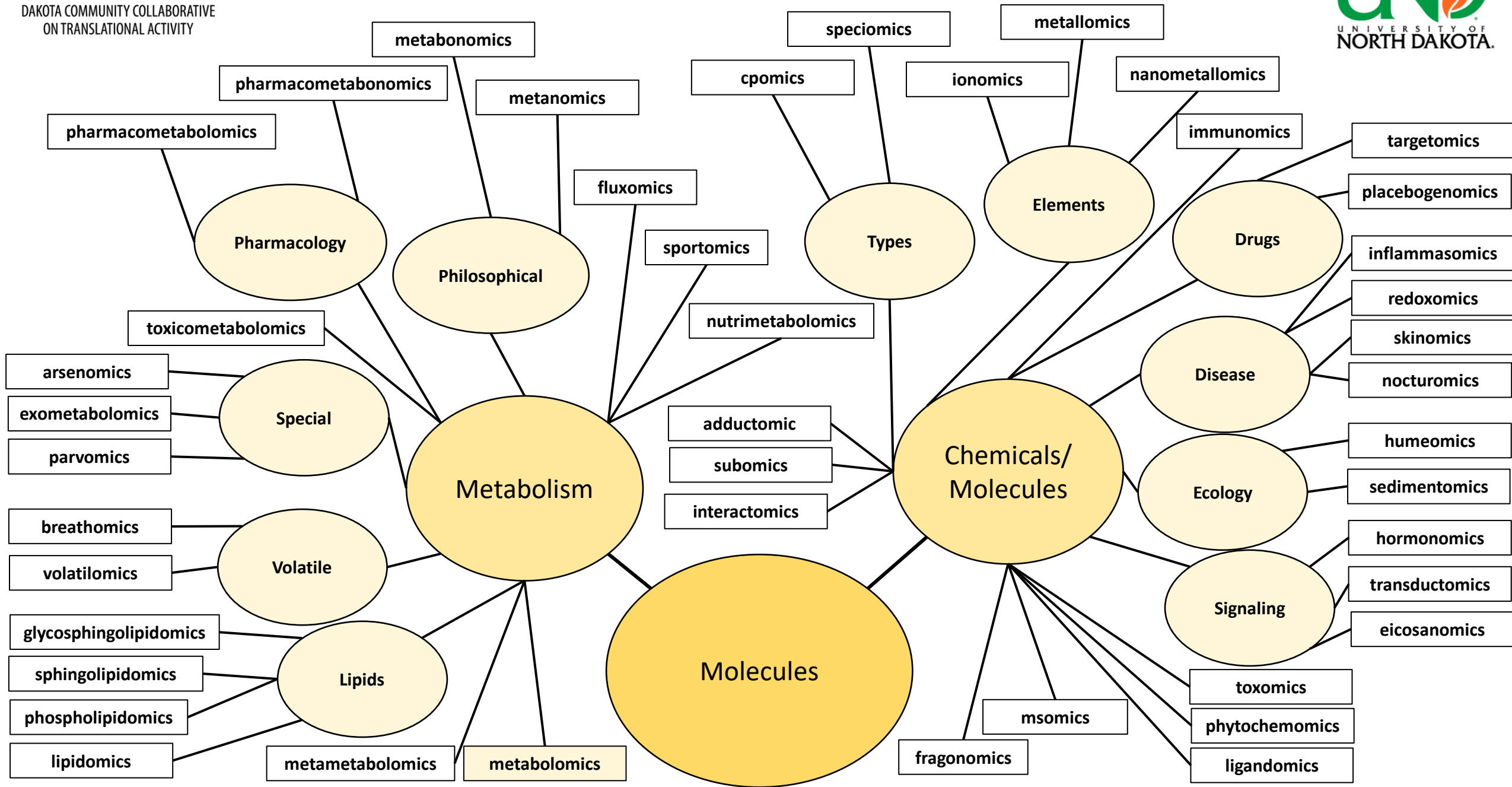


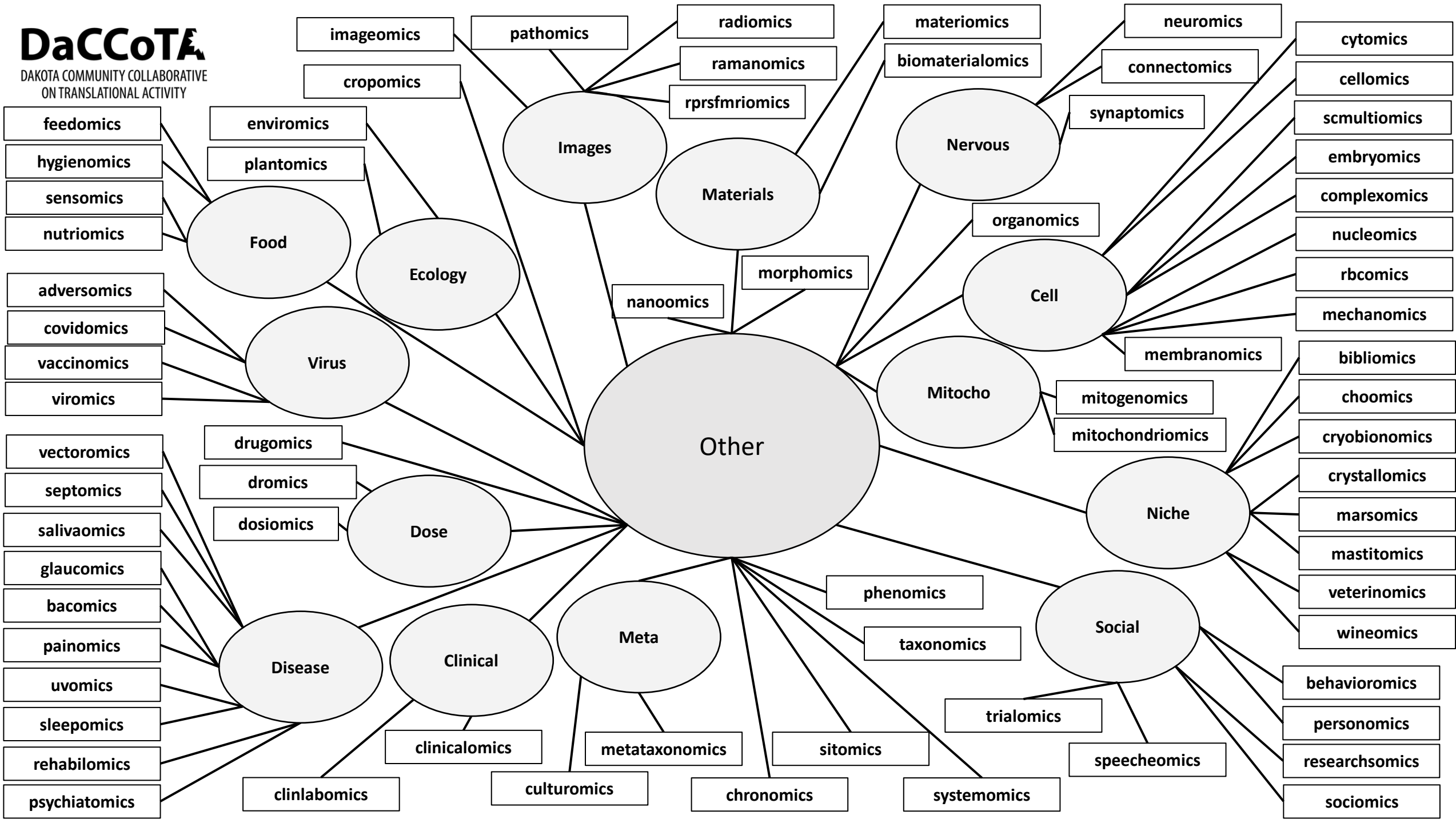


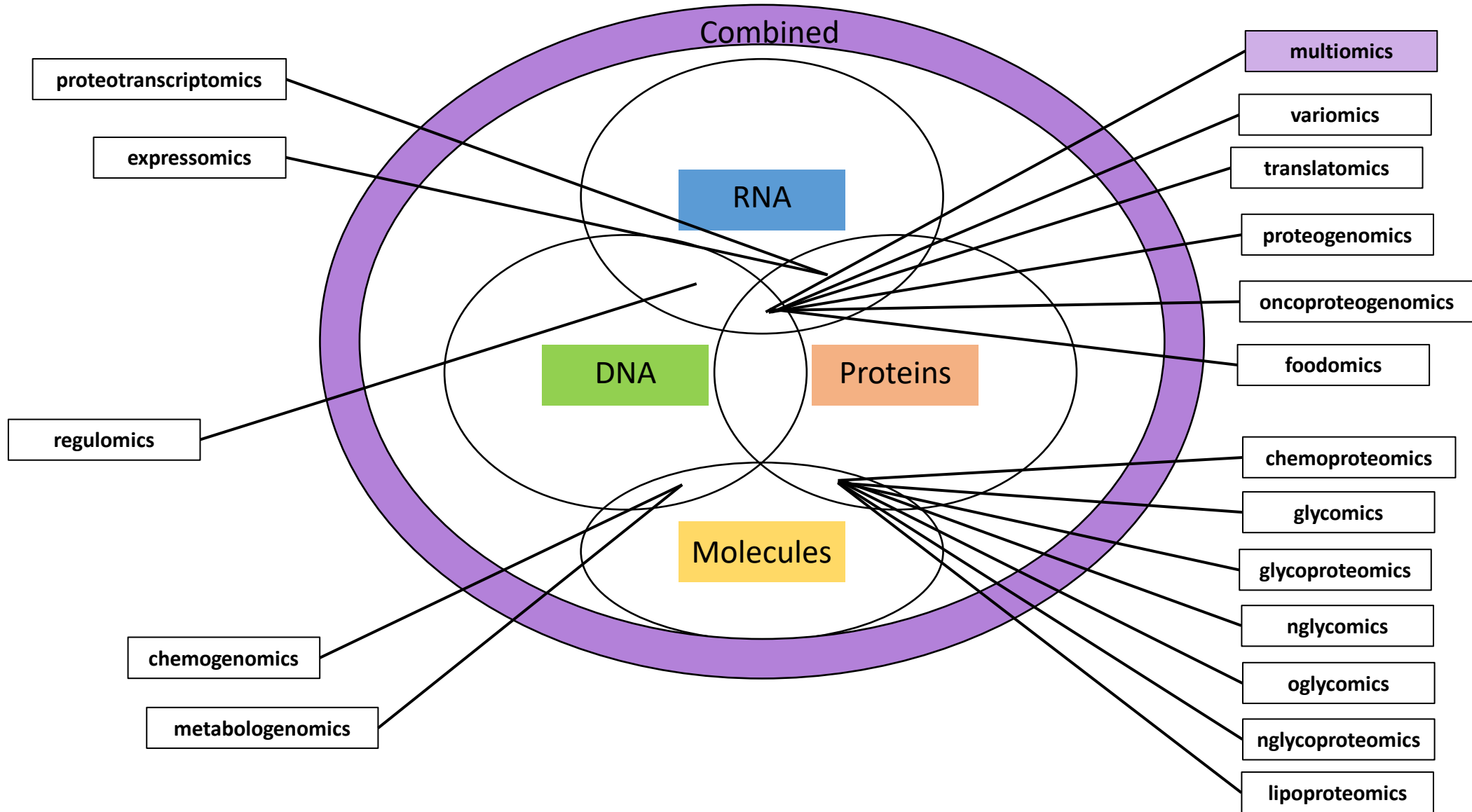












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