read NCBI taxonomy tree

interesting NCBI taxonomic classifications…

Diapheromera femorata TRUSTED

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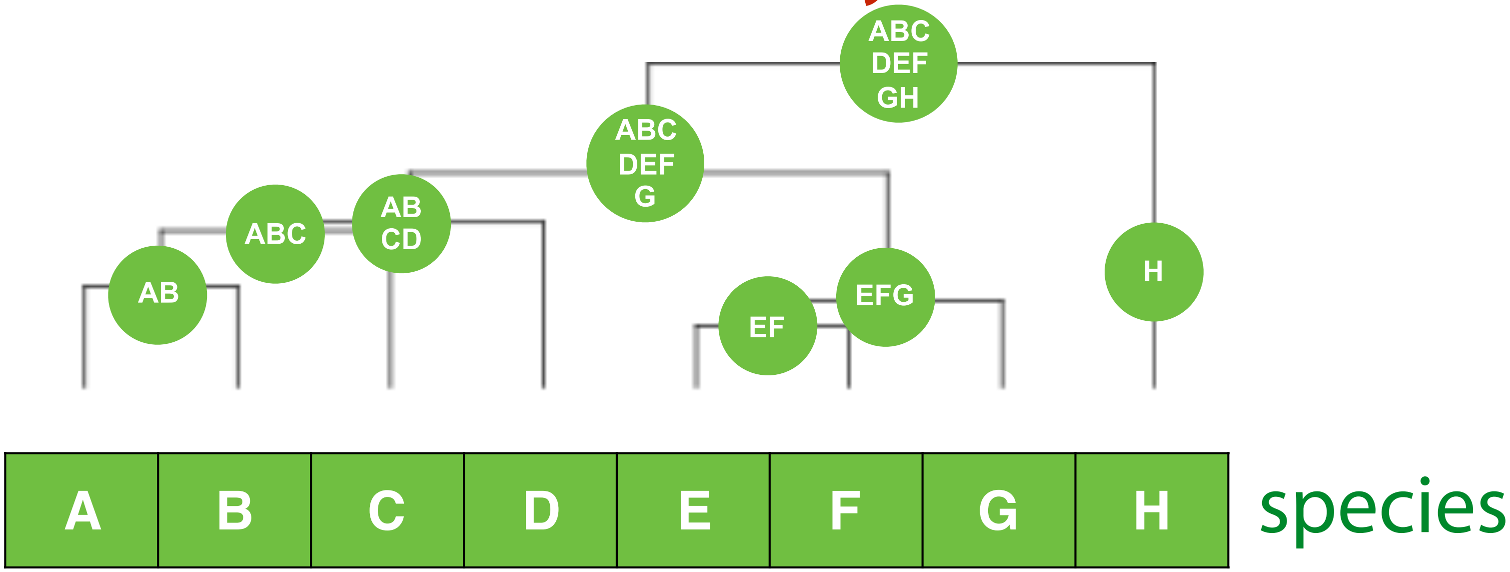
see all media

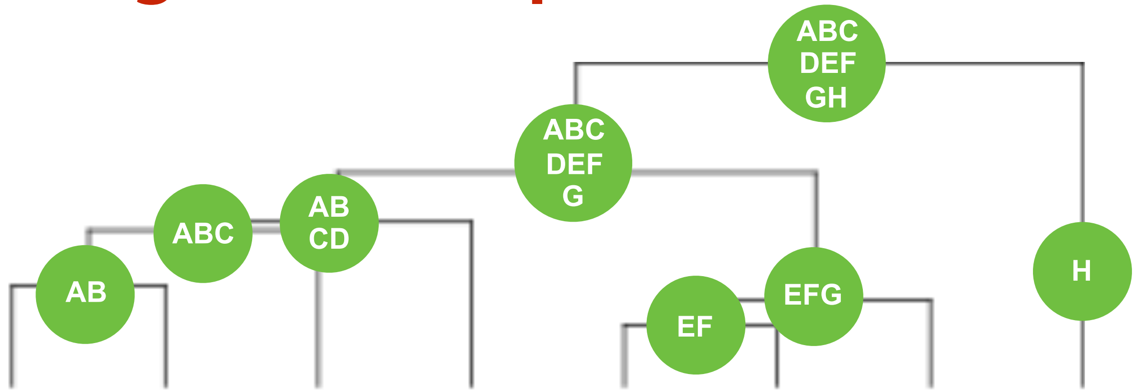
Tribe recognized by NCBI Taxonomy:

- Cellular organisms +
  - Eukaryota +
    - Opisthokonta +
      - Metazoa +
        - Eumetazoa +
          - Bilateria +
            - Protostomia +
              - Ecdysozoa +
                - Panarthropoda +
                  - Arthropoda +
                    - Mandibulata +
                      - Pancrustacea +
                        - Hexapoda +
                          - Insecta +
                            - Dicondylia +
                              - Pterygota +
                                - Neoptera +
                                  - Orthopteroidea +
                                    - Phasmatodea +
                                      - Verophasmatodea +
                                        - Anareolatae +
                                          - Diapheromeridae +
                                            - Diapheromerinae +
                                              - **Diapheromerini**
                                                - Bacteria +
                                                - Diapheromera +
                                                - Libethra +
                                                - Oncotophasma +
                                                - Pseudosermyle +
                                                - Unclassified Diap
                                              - Ocnophilini +
                                              - Oreophoetini +

read NCBI taxonomy tree



assign RNA-seq reads to leaves

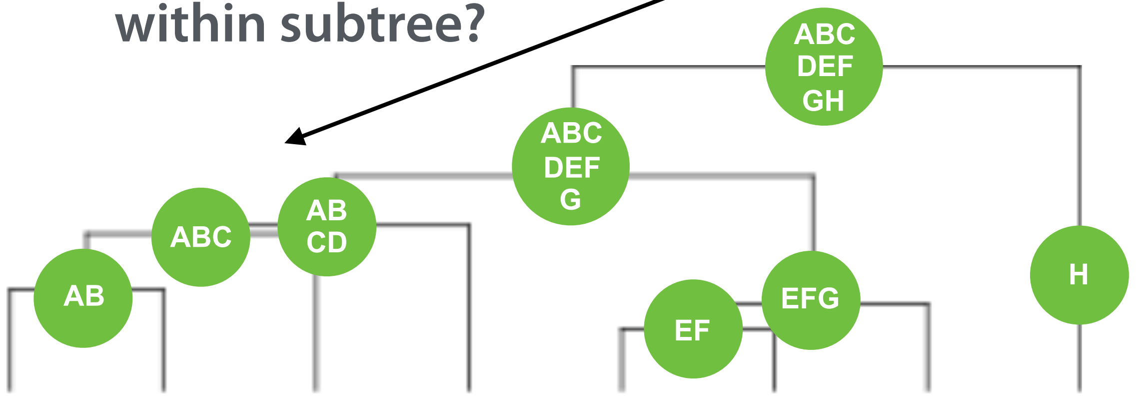


species

reads

	A	B	C	D	E	F	G	H
1	x	x	x	x				
2	x	x						
3					x	x	x	
4	x	x	x	x	x	x	x	
5	x	x	x		x	x		x

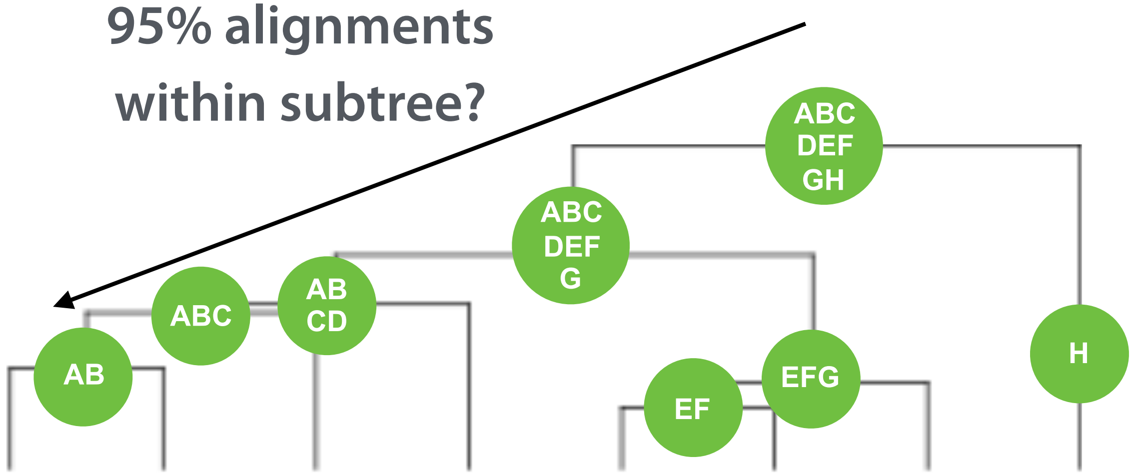
95% alignments within subtree?



species

reads	A	B	C	D	E	F	G	H
1	x	x	x	x				
2	x	x						
3					x	x	x	
4	x	x	x	x	x	x	x	
5	x	x	x		x	x		x

walk down from root until subtree no longer explains x% of alignments



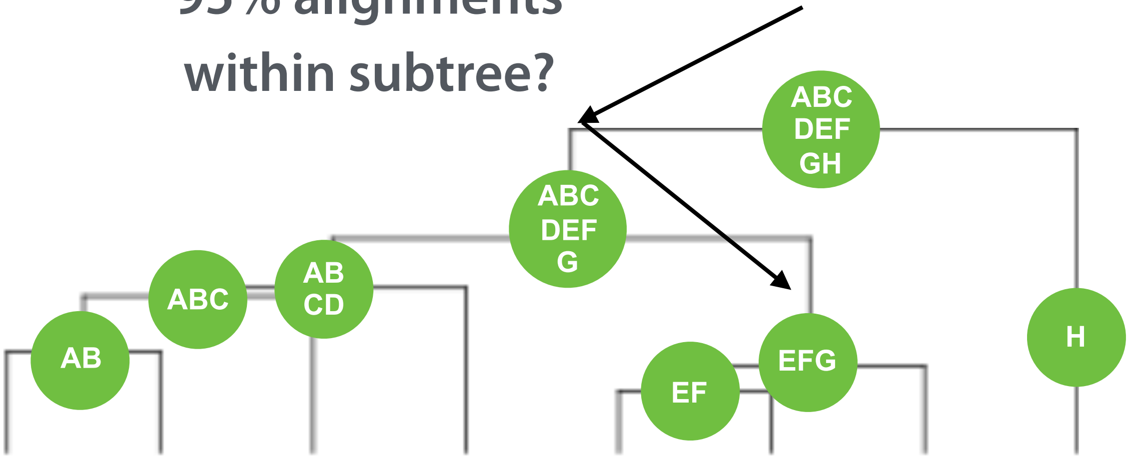
95% alignments within subtree?

species

reads	A	B	C	D	E	F	G	H
1	x	x	x	x				
2	x	x						
3					x	x	x	
4	x	x	x	x	x	x	x	
5	x	x	x		x	x		x

do this for each read

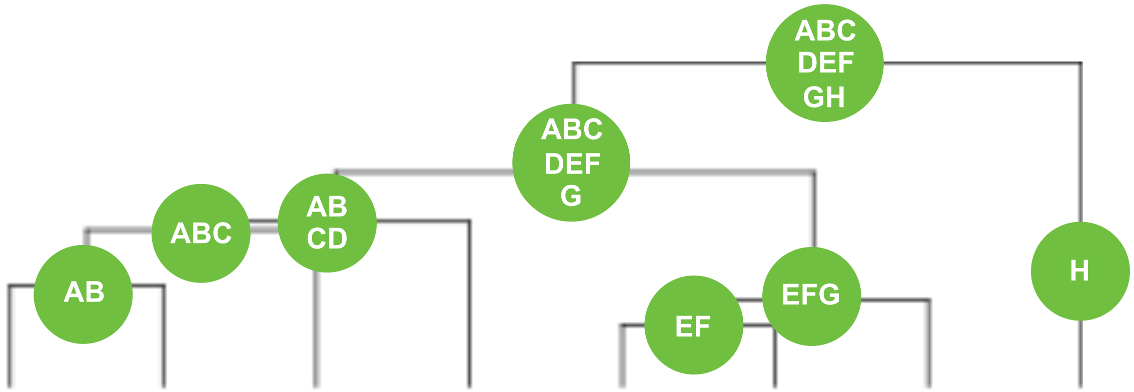
95% alignments within subtree?



species

reads	A	B	C	D	E	F	G	H
1	x	x	x	x				
2	x	x						
3					x	x	x	
4	x	x	x	x	x	x	x	
5	x	x	x		x	x		x

do this for each read

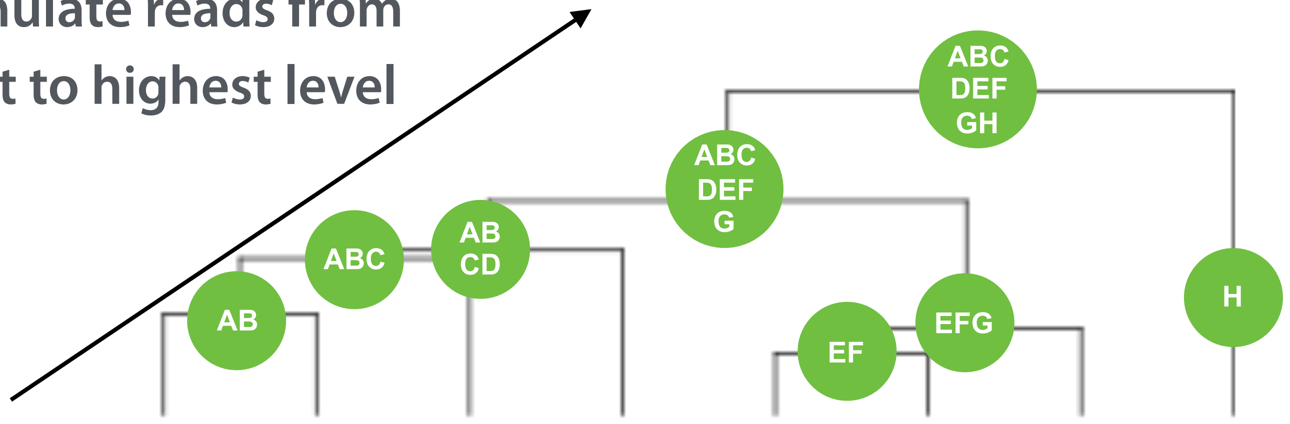


species

reads	A	B	C	D	E	F	G	H	
1	x	x	x	x					AB CD
2	x	x							AB
3					x	x	x		EFG
4	x	x	x	x	x	x	x		ABC DEF G
5	x	x	x		x	x		x	ABC DEF GH

assign read to most specific node possible

accumulate reads from
lowest to highest level



read counts

	direct	sum
AB	1	1
ABC	0	1
AB CD	1	2
EF	1	1
EFG	0	1
ABC DEF G	1	4
ABC DEF GH	1	5

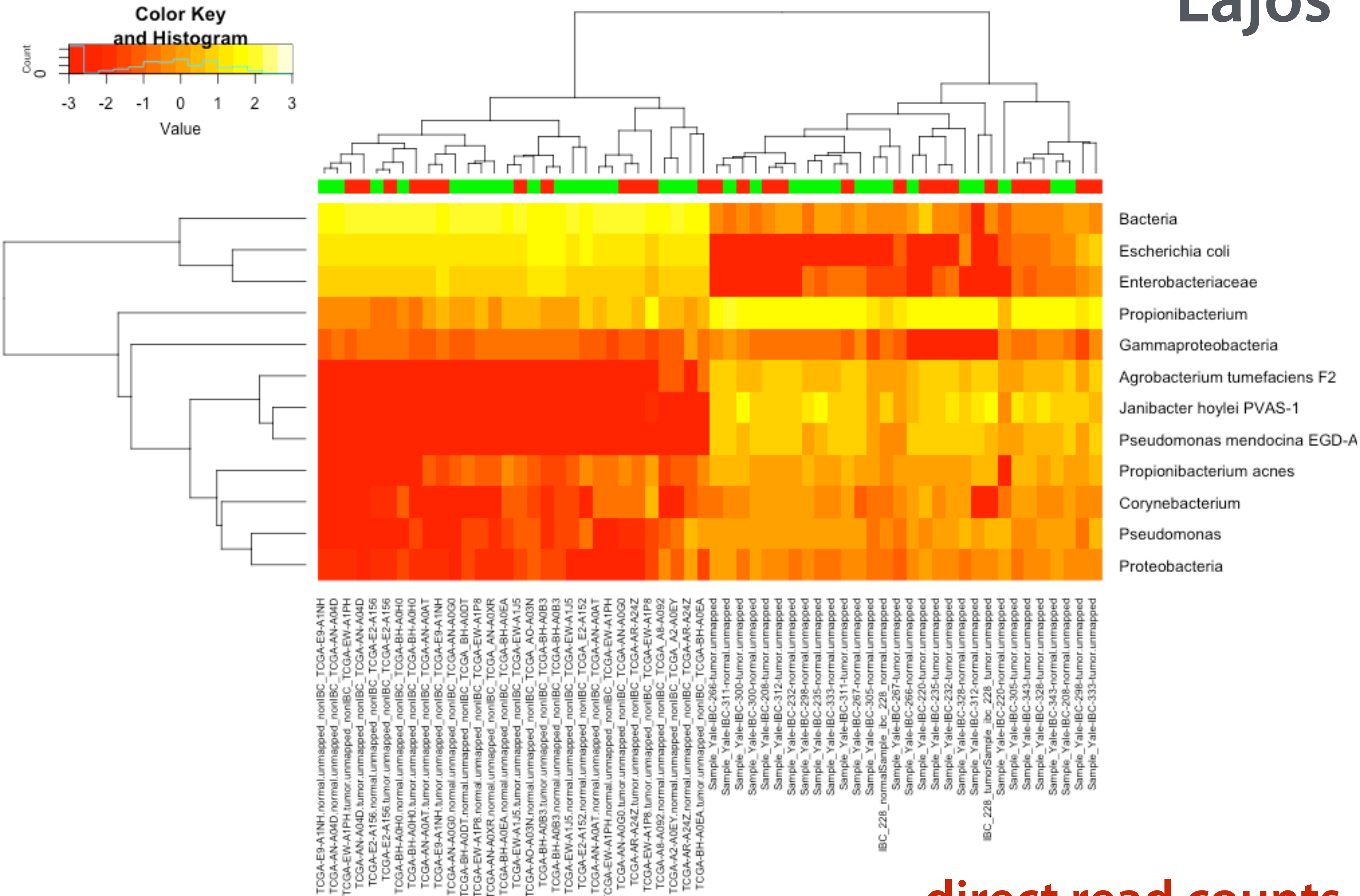
A	B	C	D	E	F	G	H
x	x	x	x				
x	x						
				x	x	x	
x	x	x	x	x	x	x	
x	x	x		x	x		x

species

sum reads going up the tree

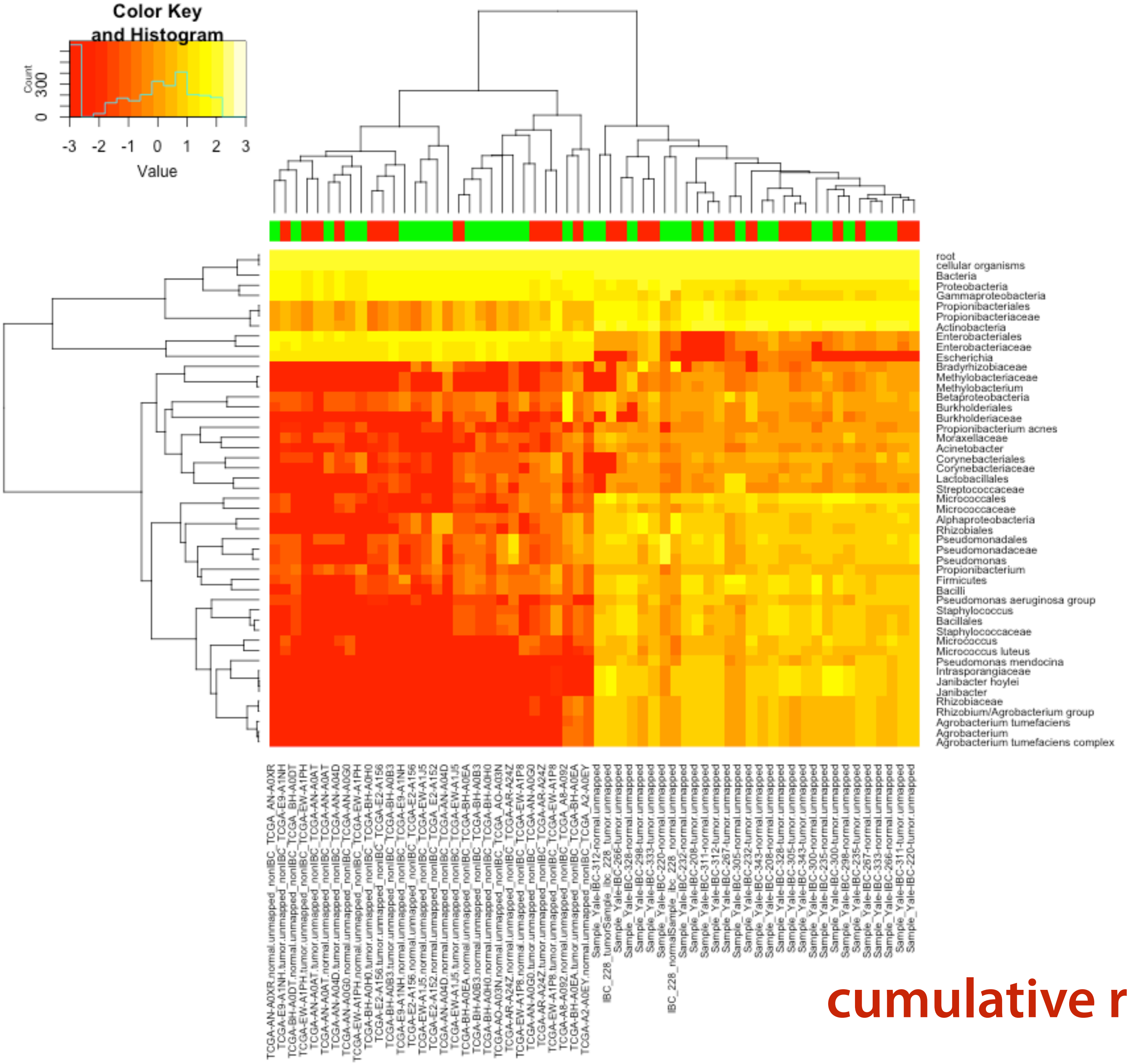
```
     indent distFromRoot            level                                          name uniqueReads allSumReads
          >            1          no rank                                          root           0        5964
         >>            2          no rank                            cellular organisms          70        5894
        >>>            3     superkingdom                                      Bacteria          22        5080
       >>>>            4           phylum                                Proteobacteria           9        4039
      >>>>>            5            class                           Gammaproteobacteria           6         226
     >>>>>>            6            order                               Pseudomonadales           0         201
    >>>>>>>            7           family                                 Moraxellaceae           5          80
   >>>>>>>>            8            genus                                 Acinetobacter          11          24
  >>>>>>>>>            9          species                       Acinetobacter johnsonii           3           0
  >>>>>>>>>            9    species group Acinetobacter calcoaceticus/baumannii complex           1          12
 >>>>>>>>>>           10          species                       Acinetobacter baumannii          11           1
   >>>>>>>>            8            genus                                 Enhydrobacter           0          43
  >>>>>>>>>            9          species                      Enhydrobacter aerosaccus           0          43
 >>>>>>>>>>           10          no rank                 Enhydrobacter aerosaccus SK60          43           0
    >>>>>>>            7           family                              Pseudomonadaceae           0         116
   >>>>>>>>            8            genus                                   Pseudomonas          33          83
  >>>>>>>>>            9    species group                  Pseudomonas aeruginosa group           0          37
 >>>>>>>>>>           10          species                         Pseudomonas mendocina           1          34
>>>>>>>>>>>           11          no rank                 Pseudomonas mendocina EGD-AQ5          34           0
  >>>>>>>>>            9    species group                 Pseudomonas fluorescens group           0           3
  >>>>>>>>>            9    species group                      Pseudomonas putida group           0          36
 >>>>>>>>>>           10          species                            Pseudomonas putida          28           8
>>>>>>>>>>>           11          no rank                      Pseudomonas putida H8234           6           0
  >>>>>>>>>            9    species group                    Pseudomonas stutzeri group           0           3
 >>>>>>>>>>           10 species subgroup                 Pseudomonas stutzeri subgroup           0           3
     >>>>>>            6            order                             Enterobacteriales           0           9
    >>>>>>>            7           family                            Enterobacteriaceae           1           8
   >>>>>>>>            8            genus                                      Serratia           0           3
  >>>>>>>>>            9          species                           Serratia marcescens           0           3
 >>>>>>>>>>           10       subspecies         Serratia marcescens subsp. marcescens           0           3
>>>>>>>>>>>           11          no rank    Serratia marcescens subsp. marcescens Db11           3           0
     >>>>>>            6            order                               Xanthomonadales           0          12
    >>>>>>>            7           family                              Xanthomonadaceae           0          12
   >>>>>>>>            8            genus                              Stenotrophomonas           8           4
      >>>>>            5            class                           Alphaproteobacteria          13        3739
     >>>>>>            6            order                                   Rhizobiales          10        3679
    >>>>>>>            7           family                             Bradyrhizobiaceae          36        3563
   >>>>>>>>            8            genus                                Bradyrhizobium          14        3500
  >>>>>>>>>            9          species                      Bradyrhizobium sp. BTAi1        3141           0
  >>>>>>>>>            9          species                      Bradyrhizobium sp. DFCI-1         356           0
   >>>>>>>>            8            genus                                   Nitrobacter           0          10
```

Lajos



direct read counts

Lajos



cumulative read counts

Zimmerome

```
      indent distFromRoot           level                                       name uniqueReads allSumReads
           >            0         no rank                                       root           0      419163
          >>            1         no rank                         cellular organisms           0      419163
         >>>            2     superkingdom                                   Bacteria      320159       99004
        >>>>            3          phylum                             Proteobacteria       28057       70938
       >>>>>            4           class                        Gammaproteobacteria        2321       68607
      >>>>>>            5           order                           Pseudomonadales           0       68509
     >>>>>>>            6          family                              Moraxellaceae           0       68488
    >>>>>>>>            7           genus                              Acinetobacter           0       68488
   >>>>>>>>>            8         species                      Acinetobacter sp. MII       68486           0
     >>>>>>>            6          family                          Pseudomonadaceae           0          21
    >>>>>>>>            7           genus                                Pseudomonas           2          19
   >>>                                                                                                    16
  >>>>                                                                                                    16
>>>>>                                                                                                      0
   >>>                                                                                                     0
      >>>>>>            5           order                         Enterobacteriales           0          88
     >>>>>>>            6          family                         Enterobacteriaceae          12          76
    >>>>>>>>            7           genus                                Escherichia           4          11
   >>>>>>>>>            8         species                           Escherichia coli           8           3
  >>>>>>>>>>            9         no rank                     Escherichia coli O104:H4           0           3
>>>>>>>>>>>           10         no rank    Escherichia coli O104:H4 str. 2011EL-1675A           3           0
    >>>>>>>>            7           genus                                 Klebsiella           0          60
   >>>>>>>>>            8         species                      Klebsiella pneumoniae           0          60
  >>>>>>>>>>            9      subspecies     Klebsiella pneumoniae subsp. pneumoniae           0          59
>>>>>>>>>>>           10         no rank Klebsiella pneumoniae subsp. pneumoniae BJ1-GA          59           0
```

In healthy individuals, Acinetobacter colonies on the skin correlate with low incidence of allergies. Acinetobacter is thought to be allergy-protective.

Klebsiella pneumoniae …found in the normal flora of the mouth, skin, and intestines