



Topic 2 Patent Drafting Techniques for Chemistry/Biotech Inventions

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Ways to claim a chemistry/bio product

- Structure (Markush, sequence)
- Composition
- Parameters
 - But watch out: method specific parameters don't belong in a product claim unless you have a product-by-process claim

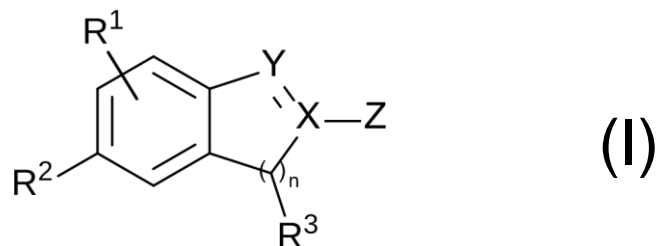
Markush claims – 1

Best way to cover multiple chemical structures sharing the same structural core

- Core structure
- Variable substituents listed as alternatives
- Position and number of substituents can be varied too

Markush claims – 2

A compound represented by formula (I)



wherein

X is C or S;

Y is N, O, or C;

Z is aryl, heteroaryl, cycloalkyl, or heterocycloalkyl;

R^1 represents independently for each occurrence hydrogen, halogen or C_{1-6} alkyl;

R^2 is hydrogen or C_{1-6} alkyl; and

R^3 is hydrogen or hydroxyl.

Markush claims – 3

- Ensure you have defined each feature in the description

Parameters in claims

- Often used for claiming polymers and in material science where it is difficult to claim structurally

An alkali metal catalyst on a basic support, in which basic support is a material which desorbs carbon dioxide at a temperature higher than standard alpha-alumina.

- If the product is new, then you might get broader protection with a product-by-process claim

Medical use claims

- Substance X for use as a medicament.
- Substance X for use in treatment of Y.
- Substance X for use in treatment of Z.

Polynucleotide claims – 1

- An **isolated** polynucleotide ...
 - A **purified** nucleotide ...
 - cDNA ...
-
- “isolated” and “purified” allow differentiation from natural polynucleotides
 - cDNA is by definition different from the corresponding DNA found in nature

Polynucleotide claims – 2

*An isolated polynucleotide which **hybridizes** to SEQ ID No. 1, or a **portion/fragment** thereof.*

- When using “hybridization” ensure that a minimum degree of homology is defined:
 - “for example 60%, with higher homology being preferred (70%), most preferred (80%), particularly preferred (90%), especially preferred (95%)”
- Watch out when using the words “portion” or “fragment”
 - define what is meant otherwise may be considered as very small (and therefore readily anticipated)

Polynucleotide claims – 3

An isolated polynucleotide having the sequence of one of SEQ ID No. 1, 3, 5, 7, 9, 11, 13, ...

- Type of claim protects many polynucleotide sequences

BUT

- It may not be clear if all the sequences share a common inventive concept. If not, then each sequence may be considered a different invention and will need to be searched (extra costs)

Polynucleotide claims – 4

- An isolated polynucleotide **comprising** SEQ ID No. 1.
 - An isolated polynucleotide **including** a polynucleotide of SEQ ID No. 1.
 - An isolated polynucleotide **of** SEQ ID No. 1.
 - An isolated polynucleotide **consisting** of SEQ ID No. 1.
- Increasingly narrower scope

Protein/polypeptide – 1

A protein/polypeptide having the SEQ ID No. 1 or a variant, homologue, or portion/fragment thereof

- Homologous sequence is limited to having same properties as parent sequence
- Watch out when using “portion/fragment” wording

Protein/polypeptide – 2

A polypeptide which is the product of method comprising steps ... (or according to claim X).

A polypeptide obtained by the method comprising steps ... (or according to claim X).

A polypeptide produced by the method comprising steps ... (or according to claim X).

A polypeptide obtainable by the method comprising steps ... (or according to claim X).

- Product by process claims
- Product must be new and inventive and there must be no other way of defining the product

Antibody claims – 1

May be able to get a broad claim in the following cases:

- For newly identified target/difficult target for raising antibody:

“An antibody which specifically binds to <target>”.

- For new medical use:

“An antibody which specifically binds to <target> for use in a method of treating <new disease or condition>”.

Antibody claims – 2

New and improved characteristic of an antibody

- For example to unexpected effect of antibody by way of structural information or functional information, such as
 - Affinity
 - Specificity
 - Epitope
 - Immunogenicity
 - Down-stream function

Antibody claims – 2

New and improved characteristic of an antibody (cont.)

- Will need to add supporting data to the application:
- Structural information for at least one exemplary antibody
- Functional data to show that the antibody specifically binds to the target
- Functional data to show that the antibody has unexpected technical effect/functional characteristics

Antibody claims – 3

New development of a known medical use

- Bispecific
 - Patient group
 - Drug conjugate
 - Combination/administration
 - Dose/formulation
 - Administration regime/route
-
- Again, need to keep in mind that will need comparative data/supporting arguments

Antibody claims – 2

An antibody specific for the polypeptide of claim X

- Very limited claim

Reach through claims

- An isolated polypeptide identified by the method of claim X
- A polypeptide identifiable by the method of claim X
- A polynucleotide obtained by screening method of claim X

- Caution: these claims may lack support in certain jurisdictions (EP)

Exclusions to patentability

Some jurisdictions don't allow some claim types:

- Diagnostic methods
- Therapeutic methods
- Surgical methods
- Plant, animal and biological processes for producing plants and animals

Claim categories

- Check that you have claims to all the possible claim categories:
- Compound / product per se
- Intermediate(s)
- Composition comprising product(s)
- Use of product/composition
- Process for making product/compound/composition
- Process for making intermediate
- Process for making composition
- Kit of parts

Final checklist

- Check that claims do NOT cover embodiments in the prior art
- Check that claims do NOT cover embodiments that do NOT work
- Are all of the essential elements present in the claims? (e.g. are all of the features required to fulfill the technical effect in the claims?)
- Check that don't have too many limitations
- Check the scope of your product and method claims – sometimes the method claims can be broader than product claims
- Check consistency between independent claims and dependent claims

Thank you!