

**DO NOT SCAN THIS DOCUMENT INTO IFW**  
**SUBJECT MATTER ELIGIBILITY WORKSHEET**  
**Nature-Based Products**

This worksheet can be used to assist in analyzing a claim for “Subject Matter Eligibility” (SME) under 35 U.S.C. 101 for any judicial exception (law of nature, natural phenomenon, or abstract idea) in accordance with the [2014 Interim Eligibility Guidance](#) and the [July 2015 Update on Subject Matter Eligibility](#). As every claim must be examined individually based on the particular elements recited therein, a separate worksheet should be used to analyze each claim. The use of this worksheet is optional.

This worksheet can be used to analyze any claim, but includes specific information designed to address aspects of the eligibility analysis (such as the markedly different characteristics analysis) that apply only to claims directed to nature-based products. This worksheet will be used to walk through several of the product of nature examples [\*Link to Life Sciences examples] published on the website. (A blank generic worksheet is available on the training website.) It is suggested that the worksheet be used with the [2014 Interim Eligibility Guidance Quick Reference Sheet](#), which include an overview of the analysis, along with the flowchart and form paragraphs referenced herein, the [July 2015 Update: Interim Eligibility Guidance Quick Reference Sheet](#) that includes a chart of abstract idea concepts, and the [Subject Matter Eligibility Court Decisions chart](#).

**Worksheet Summary:** Section I is designed to address the first activity in examination, which is to determine what applicant invented and to construe the claim in accordance with its broadest reasonable interpretation (BRI). Next, referring to the eligibility flowchart reproduced in the *Quick Reference Sheet*, Section II addresses *Step 1* regarding the four statutory categories of invention. Section III addresses *Step 2A* by determining whether the claim is directed to a judicial exception. Section IV addresses *Step 2B* by identifying additional elements to determine if the claim amounts to significantly more than an exception.

**Application/Example No. and claim: Example 28, claim 3**

***I. What did applicant invent?***

Review the disclosure to identify what applicant considers as the invention. (MPEP 2103(I))

Applicant invented:

A vaccine against Pigeon flu comprising Peptide F. Pigeon flu is caused by the naturally occurring Pigeon flu virus, which infects pigeons and humans. Peptide F is a naturally occurring peptide that applicant isolated from the Pigeon flu virus without altering its characteristics. The peptide vaccine also contains a pharmaceutically acceptable carrier such as water.



This can be a brief description and should not merely reproduce the claim. The take away here is that applicant's invention is focused on the vaccine comprising peptide F.

Establish the broadest reasonable interpretation (BRI) of the claim.

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Based on the plain meaning of "vaccine" and "pharmaceutically acceptable carrier", the BRI of the claim is a sufficient amount of Peptide F to produce an immunogenic response in a typical patient, which is mixed with a pharmaceutically sufficient amount of a carrier such as water.

**II. Does the claimed invention fall within one of the four statutory categories of invention (process, machine, manufacture or composition of matter) (Step 1)?**

Choose A or B:

A. Yes, the claimed invention is a composition of matter.

**Continue with the SME analysis.**

B. No, the claimed invention is not one of the four statutory categories. Make a rejection of the claim as being drawn to non-statutory subject matter. Use *Form Paragraphs 7.05 and 7.05.01 available in Custom OACs*.

If the claim could be amended to fall within one of the statutory categories, it is recommended to **continue with the SME analysis** under that assumption. Make the assumption clear in the record if a rejection is ultimately made under *Step 2*, and consider suggesting a potential amendment to applicant that would result in the claim being drawn to a statutory category.

If no amendment is possible, **conclude the SME analysis** and continue with examination under each of the other patentability requirements.

**III. Is the claim directed to a product of nature, a law of nature, a natural phenomenon, or an abstract idea (judicially recognized exceptions) (Step 2A)?**

A claim is "directed" to a product of nature exception when the claim recites (*i.e.*, **sets forth or describes**) a nature-based product limitation that does not exhibit markedly different characteristics from its naturally occurring counterpart in its natural state. Although a nature-based product can be claimed by itself (*e.g.*, "a *Lactobacillus* bacterium") or as one or more limitations of a claim (*e.g.*, "a probiotic composition comprising a mixture of *Lactobacillus* and milk in a container"), the markedly different characteristics analysis should be applied only to the nature-based product limitations in the claim to determine whether the nature-based products are "product of nature" exceptions. Non-limiting examples of the types of characteristics considered by the courts when determining whether there is a marked difference include: biological or pharmacological functions or activities; chemical and physical properties; phenotype, including functional and structural characteristics; and structure and form, whether chemical, genetic or physical.

Note that a process claim is not subject to the markedly different analysis for nature-based products used in the process, except in the limited situation where a process claim is drafted in such a way that there is no difference in substance from a product claim (*e.g.*, "a method of providing an apple.").

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Even if a claim is not “directed” to a product of nature, it may be “directed” to a different exception, for example when a law of nature, natural phenomenon, or abstract idea is recited (*i.e.*, **set forth** or **described**) in the claim. For this analysis, it is sufficient to identify that the claimed concept aligns with at least one judicial exception, as there are no bright lines between the types of exceptions. Laws of nature and natural phenomena, as identified by the courts, include naturally occurring principles or substances. Abstract ideas have been identified by the courts by way of example, including fundamental economic practices, certain methods of organizing human activity, ideas themselves (standing alone), or mathematical relationships/formulae.

Assistance in identifying judicial exceptions can be obtained by referring to the case law chart available on the website [insert link] and the court case discussions in the 2014 Interim Eligibility Guidance.

*Choose A, B, or C:*

- A. No, the claim does not recite a nature-based product limitation, or a concept that is similar to those found by the courts to be an exception. **Conclude SME analysis** and continue with examination under each of the other patentability requirements. If needed, the record can be clarified by providing remarks in the Office action regarding interpretation of the claim (*for example*: the broadest reasonable interpretation of the claim is not directed to an abstract idea or nature-based product.)
- B. Yes, but the streamlined analysis is appropriate as eligibility is self-evident, and a full eligibility analysis is not needed. Applicant’s claimed invention, explained in Section I above, is not focused on an exception, and the claim clearly does not attempt to tie up an exception such that others cannot practice it. (Refer to the [February 2015 Training Slides](#) for information and examples of a streamlined analysis.) **Conclude SME analysis** and continue with examination under each of the other patentability requirements.

C. Yes, the claim is directed to a nature-based product limitation, and/or a concept that is similar to those found by the courts to be an exception. *Proceed to 1 and 2.*

1. If the claim is directed to a nature-based product limitation, identify the limitation(s) in the claim that recite(s) the nature-based product and explain whether or not the claimed nature-based product exhibits markedly different characteristics compared to its naturally occurring counterpart in its natural state. *Complete all of (a), (b) and (c).* If the claim is not directed to a nature-based product limitation, proceed to Question 2.

(a) The limitation(s) in the claim that set(s) forth or describe(s) a nature-based product is (are):

the mixture of Peptide F and a pharmaceutically acceptable carrier.  
The carrier can be a nature-based product such as water.

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(b) The closest naturally occurring counterpart in its natural state is to the claimed nature-based product limitation is:

the naturally occurring components of the claimed vaccine, i.e., Peptide F, and a carrier such as water (because Peptide F and a carrier do not occur together in nature).

(c) Compare the claimed nature-based product limitation to its counterpart to determine whether it does or does not exhibit markedly different characteristics as compared to the counterpart in its natural state. Based on the comparison, *choose (i) or (ii)*.

(i) The nature-based product exhibits markedly different characteristics (and thus is not a product of nature exception) because:

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(ii) The nature-based product lacks markedly different characteristics (and thus is a product of nature exception) because:

there is no indication that mixing these components changes the structure, function, or other properties of the peptide or carrier such as water. For example, the claim encompasses a mixture where the peptide is heterogeneously dispersed in water, but such heterogeneous mixing does not change the structure, function, or other properties of the peptide or the water in any marked way. Instead, the peptide retains its naturally occurring structure and function, and is merely dispersed in the water, which also retains its naturally occurring structure and function. Thus, for at least one embodiment within the broadest reasonable interpretation (e.g., where the carrier is water), the claimed mixture as a whole does not display markedly different characteristics compared to the naturally occurring counterparts. Accordingly, each component (the peptide and the carrier) is a "product of nature" exception.



Judicial exceptions need not be old or long-prevalent.

**Proceed to Question 2, to determine if the claim is “directed” to another type of exception.**

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2. If the claim is directed to an abstract idea, law of nature, and/or natural phenomenon, identify the limitation(s) in the claim that recite(s) the exception and explain why the recited subject matter is an exception.

The limitation(s) in the claim that set(s) forth or describe(s) the law of nature, natural phenomenon, or abstract idea is (are):

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The reason(s) that the limitation(s) are considered a judicial exception is (are):

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**If the results of Questions 1 and 2 is that the claim is not directed to any judicial exception, conclude SME analysis** and continue with examination under each of the other patentability requirements. If needed, the record can be clarified by providing remarks in the Office action regarding interpretation of the claim (*for example*: the broadest reasonable interpretation of the claim is directed to a nature-based product that exhibits markedly different characteristics from its natural counterparts).

**Otherwise, the claim is directed to at least one judicial exception. Continue with the SME analysis.**

***IV. Does the claim as a whole amount to significantly more than the judicial exception, i.e., the product of nature, law of nature, natural phenomenon, or abstract idea (Step 2B)?***

- A. Are there any additional elements (features/limitations/step) recited in the claim beyond the exception(s) identified above? Note that if the claim is directed to a product of nature comprising a combination of component elements that do not occur together in nature as claimed, each component element should be considered as an additional element to the other components to determine whether their combination results in significantly more.

*Choose 1 or 2:*

1. No, there are no other elements in the claim in addition to the exception. **Conclude SME analysis** by making a § 101 rejection and continue with examination under each of the other patentability requirements. *Use Form Paragraphs 7.05 and 7.05.015 available in Custom OACs.*

Are there elements in the disclosure that could be added to the claim that may make it eligible? Identify those elements and consider suggesting them to applicant:

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2. Yes, the claim elements (features/limitations/steps) in addition to the exception are:

Peptide F as an additional element to the carrier, and vice-versa. This is because the component elements (the peptide and carrier "product of nature" exceptions) do not occur together in nature as claimed and are not markedly changed by their combination into a mixture.

**Continue with the SME analysis.**

B. Evaluate the significance of the additional elements. Identifying additional elements and evaluating their significance involves the search for an "inventive concept" in the claim. It can be helpful to keep in mind what applicant invented (identified in Section I above) and how that relates to the additional elements to evaluate their significance.

Consider the identified additional elements individually and in combination to determine whether the claim as a whole amounts to significantly more than the product of nature identified above. Reasons supporting the significance of the additional elements can include one or more of the following:

- improves another technology or technical field
- improves the functioning of a computer itself
- applies the exception with, or by use of, a particular machine
  - *not* a generic computer performing generic computer functions
  - *not* adding the words "apply it" or words equivalent to "apply the exception"
  - *not* mere instructions to implement an abstract idea on a computer
- effects a transformation or reduction of a particular article to a different state or thing
- adds a specific limitation other than what is well-understood, routine and conventional in the field
  - *not* appending well-understood, routine, and conventional activities previously known to the industry, specified at a high level of generality
  - *not* a generic computer performing generic computer functions
- adds unconventional steps that confine the claim to a particular useful application
  - *not* adding insignificant extrasolution activity, such as mere data gathering
- adds meaningful limitations that amount to more than generally linking the use of the exception to a particular technological environment

The additional elements must show an "inventive concept." Many of these considerations overlap, and more than one can often be applied to describe an element. It is not important how the elements are characterized or how many considerations apply from this list. It is important to evaluate the significance of the additional elements relative to applicant's invention.

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Complete (1) or (2) below:

1. Yes, the additional elements, taken individually or as a combination, result in the claim amounting to significantly more than the exception(s) because

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If any elements, individually or as a combination, amount to the claim reciting significantly more than the exception(s), **conclude SME analysis** and continue with examination under each of the other patentability requirements. If needed, the record can be clarified by providing remarks in the Office action regarding interpretation of the claim (*for example*: the claim recites the product of nature “x”, but amounts to significantly more than the product of nature itself with the additional element “y” because “abc”.)

2. No, the additional elements, taken individually and as a combination, do not result in the claim amounting to significantly more than the exception(s) because

Prior to applicant’s invention and at the time of filing the application, using a carrier in a peptide vaccine was well-understood, routine & conventional. So the mixing of the peptide and carrier, when recited at this high level of generality, does not meaningfully limit the claim.

This claimed mixture is like the novel bacterial mixture of *Funk Brothers*, which was held ineligible because each species of bacteria in the mixture (like each component in the peptide-carrier mixture) continued to have “the same effect it always had”, *i.e.*, it lacked markedly different characteristics. *Funk Brothers Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 131 (1948), discussed in *Myriad Genetics*, 133 S. Ct. at 2117 (explaining that the bacterial mixture of *Funk Brothers* “was not patent eligible because the patent holder did not alter the bacteria in any way”).

The claim is ineligible. See the sample rejection below.

If no elements, taken individually and as a combination, amount to the claim reciting significantly more than the exception, **conclude the SME analysis** by making a § 101 rejection and continue with examination under each of the other patentability requirements. Use Form Paragraphs 7.05 and 7.05.015 available in Custom OACs.

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Are there elements in the disclosure that could be added to the claim that may make it eligible? Identify those elements and consider suggesting them to applicant:

The disclosed element of an immuno-effective amount of an aluminum salt adjuvant. For an example of a claim reciting this element in a manner that results in the claim as a whole amounting to eligible subject matter, see claim 5 of Example 28.

**Sample Rejection:**

Use Form Paragraphs 7.05 and 7.05.015

Claim 3 is rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claim 3 is directed to

a mixture of Peptide F and a carrier such as water, which is a nature-based product and must be compared to its closest naturally occurring counterpart to determine if it has markedly different characteristics than the counterpart. Because Peptide F and water do not occur together in nature, there is no naturally occurring counterpart mixture for comparison, and so the claimed mixture is compared to its naturally occurring components, i.e., Peptide F, and water. Peptide F is naturally occurring, and water is naturally occurring, so neither would be eligible as claimed on their own. While the mixture of these two naturally occurring components does not occur in nature, there is no indication that mixing these components changes the structure, function, or other properties of the peptide or water. For example, the claim encompasses a mixture where the peptide is heterogeneously dispersed in the water, but such heterogeneous mixing does not change the structure, function, or other properties of the peptide or the water in any marked way. Instead, the peptide retains its naturally occurring structure and function, and is merely dispersed in the water, which also retains its naturally occurring structure and function. Thus, the claimed mixture as a whole does not display markedly different characteristics compared to the naturally occurring counterparts. Accordingly, each component (the peptide and the carrier) is a "product of nature" exception, and the claim is directed to at least one exception.

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The claim does not include additional elements that are sufficient to amount to significantly more than the judicial exception because

each component continues to have the same properties in the mixture as it had alone. In addition, using a carrier in a peptide vaccine was well-understood, routine & conventional prior to applicant's invention and at the time of filing the application, so the mixing of the peptide and carrier, when recited at this high level of generality, does not meaningfully limit the claim. Thus, the claim as a whole does not amount to significantly more than each "product of nature" by itself. The claim does not qualify as eligible subject matter.