STRUCTURE YOUR PARAGRAPHS AND SENTENCES FOR IMPACT WORKSHEET

LEARNING OUTCOMES: EXPLAIN HOW TO STRUCTURE A PARAGRAPH; EXPLAIN THE POWER POSITIONS IN A PARAGRAPH

BECOME THE TEACHER!

One of the best ways to learn a topic is to teach it. Meet up with a friend or family member, and during your conversation, explain to them how to structure a paragraph. This discussion should include the four structural elements of a paragraph and an explanation of the power positions within the paragraph.

Hint: The structural elements are Topic Sentence, Supporting Argument, Evidence/examples, and Conclusion; the power positions are the first sentence and last sentence.

LEARNING OUTCOMES: LIST EXAMPLES OF PURPOSES OF A PARAGRAPH; DESCRIBE THE CHARACTERISTICS OF A GOOD PARAGRAPH

FOR EACH OF THE FOLLOWING PARAGRAPHS, DETERMINE THE PURPOSE OF THE PARAGRAPH, AND CRITIQUE THE PARAGRAPH FOR THE FOUR CHARACTERISTICS OF A GOOD PARAGRAPH

1. The finding that FnCpf1 can mediate DNA interference with crRNA alone is highly surprising given that Cas9 recognizes crRNA through the duplex structure between crRNA and tracrRNA (refs), as well as the 3′ secondary structure of the tracrRNA (refs). To ensure that crRNA is indeed sufficient for forming an active complex with FnCpf1 and mediating RNA-guided DNA cleavage, we investigated whether FnCpf1 supplied only with crRNA can cleave target DNA in vitro. We purified FnCpf1 (Figure S2) and assayed its ability to cleave the same protospacer-1-containing plasmid used in the bacterial DNA interference experiments (Figure 3A). We found that FnCpf1 along with an in-vitro-

transcribed mature crRNA-targeting protospacer 1 was able to efficiently cleave the target plasmid in a Mg2+- and crRNA-dependent manner (Figure 3B). Moreover, FnCpf1 was able to cleave both supercoiled and linear target DNA (Figure 3C). These results clearly demonstrate the sufficiency of FnCpf1 and crRNA for RNA-guided DNA cleavage.

Purpose: Narration: reporting related events to tell a story

Critique: Excellent topic sentence, development, and conclusion!

2. MPC-D 102/113 can be identified as an oviraptorosaur on the basis of the laterally-everted acromion process of the scapula and by the pubis, which is mesopubic and anteriorly curved. This identity is further supported by the distinctive morphologies of the angular and the metatarsals. The skeleton contrasts with those of avimimids by being significantly larger than would be expected of *Avimimus nemegtensis*, as well as the retention of the proximal end of Metatarsal III, which is lost in avimimids. Furthermore, the preserved fragments of Metatarsals II and IV of MPC-D 102/113 indicate a deep plantar concavity on the tarsometatarsus, which is absent in both avimimids and oviraptorids. Compared to oviraptorids, the scapula is more robust and extends anteriorly to the acromion process, which changes the relative positions of the glenoid and acromion process. Whereas these are more closely placed in oviraptorids, in MPC-D 102/113, the glenoid is anterior to the acromion process. The coracoid similarly differs from those of oviraptorids in the more dorsal positions of the biceps tubercle and coracoid foramen relative to the glenoid. The pubis also contrasts with those of oviraptorids in being relatively straight distally instead of anteriorly concave, and in the presence of a distinct, enclosed medial fossa at the proximal end, a feature that is less well developed in oviraptorids.

Purpose: Synthesis; combining results with previous knowledge to present a new perspective

Critique: Excellent topic sentence and development. The final sentence is not a wrap up of the paragraph (conclusion), but it could make a good transition to the next paragraph.

3. Mass remaining decreased sharply within the initial 7-day incubation, and then decreased slowly (Fig). After 7 days, there was an evident interaction between nutrient enrichment and water level on the mass remaining. The remaining weight of litter in 25 cm water level in the nutrient control treatment was lower than those in other water levels (Fig), while the remaining weight was significantly higher in 25 cm water level in the nutrient enrichment treatment ($p < 0.05$, Fig). In the nutrient control treatment, the mass remaining in different water levels showed significant differences at 21, 42, and 70 days ($p < 0.05$, Fig). However, the significant differences in the mass remaining between different water levels existed at 7, 14, 21, and 28 days in the nutrient enrichment treatment ($p < 0.05$, Fig). At 21, 28, 42, and 70 days, there were significant differences in the remaining weight of litter between the nutrient control treatment and nutrient enrichment treatment ($p < 0.05$, Fig). After 70 days of decomposition, the mass remaining in all three water levels in the nutrient control treatment was higher than those

in the nutrient enrichment treatment. At 70 days, the remaining weight of litter in 15 cm level in the nutrient control treatment and the nutrient enrichment treatment showed significant differences at 37.1% and 27.1% ($p < 0.05$, Fig).

Purpose: Description

Critique: The first sentence is not exactly a topic sentence, as it refers to only the first time point. But it does give a good idea of what the paragraph will be about and the paragraph has good cohesiveness. The paragraph has excellent use of examples to support the argument. It does not have a conclusion or clear transition, but that is probably OK for a paragraph like this one, which is clearly a Results paragraph.

4. The high frequency of AR pathway alterations in this cohort strongly implies that the vast majority of mCRPC affected individuals remain dependent on AR signaling for viability. The "second-generation" AR-directed therapies may select for distinct phenotypes that may be indifferent to AR signaling, and prospective characterization of such cases will be of particular interest. We hypothesize that affected individuals with acquired AR mutations, including new AR mutations discovered in this cohort, will harbor differential responses to these second-generation ADT therapies. As the number of affected individuals in this cohort with AR mutations increases, we will subsequently be able to link specific AR mutations with clinical phenotypes to determine which mutations confer selective response or resistance to subsequent AR-directed therapy.

Purpose: To argue; developing a logical position, in this case a hypothesis

Critique: The first half of the first sentence functions as a topic, and hold the paragraph together. Great development. The final sentence makes a conclusion and acts as a transition to the next paragraph.

5. While the rapamycin-FKBP12 complex directly inhibits mTORC1, mTORC2 is characterized by its insensitivity to acute rapamycin treatment. Like mTORC1, mTORC2 also contains mTOR and mLST8. Instead of Raptor, however, mTORC2 contains Rictor (rapamycin insensitive companion of mTOR), an unrelated protein that likely serves an analogous function. mTORC2 also contains DEPTOR, as well as the regulatory subunits mSin1 and Protor1/2. Although rapamycin-FKBP12 complexes do not directly bind or inhibit mTORC2, prolonged rapamycin treatment does abrogate mTORC2 signaling, likely due to the inability of rapamycin-bound mTOR to incorporate into new mTORC2 complexes.

Purpose: To compare

Critique: The topic sentence makes it clear that the authors are going to compare mTORC1 to mTORC2. The development doesn't include many examples, but that may not be necessary in this case. A stronger conclusion or transition might make this a stronger paragraph.

6. However, we found an inconsistency between relative promoter unit (RPU) measurements obtained via the fluorescence and enzymatic activities of Gemini. Specifically, we observed that at high expression levels the relative promoter measurements obtained via the fluorescence activity of Gemini (Figure a) diverge from the relative promoter measurements obtained via the enzymatic activity of Gemini (Figure b). One explanation for this divergence is that the enzymatic activity of Gemini may saturate if the quantity of expressed Gemini-encoded α-fragment exceeds the amount of complementing omega-fragment present within cells. Careful characterization of a functional full-length β-gal GFP fusion would help to consider this model.

Purpose: To evaluate by drawing conclusion about the success of Gemini and some of its limitations

Critique: Good topic sentence and development, and a strong conclusion.

LEARNING OUTCOME: DETERMINE THE CORRECT SUBJECT AND VERB FOR A SENTENCE

FOR EACH SENTENCE BELOW, IDENTIFY THE CURRENT SUBJECT AND MAIN VERB. THEN DETEMINE IF THE SENTENCE WOULD BE BETTER WITH A DIFFERENT SUBJECT AND MAIN VERB, AND RE-WRITE THE SENTENCE AS NEEDED.

Omoe et al. used a monkey feeding test to evaluate the emetic activity of some newly discovered SEIs.

Subject: Omoe et al.

Verb: used

Suggested revision: The emetic activity of some newly discovered SEIs has been evaluated using a monkey feeding test (Omoe et al.).

Studies have suggested several major signaling pathways and molecular targets, including oxidative stress, metabolism dysfunction, deregulated autophagy, telomere shortening, mitochondrial dysfunction, cellular calcium homeostasis, and systemic inflammation modulation of aging and lifespan in a wide range of species expanding from yeast to mammals.

Subject: Studies

Verb: have suggested

Suggested revision: Several major signaling pathways and molecular targets have been suggested based on studies in a wide range of species expanding from yeast to mammals, including oxidative stress, metabolism dysfunction, deregulated autophagy, telomere

shortening, mitochondrial dysfunction, cellular calcium homeostasis, and systemic inflammation modulation of aging and lifespan.

Gong et al. showed that at 7 days after TBI, mGluR2/3 and mGluR5 expression was reduced in the ipsilateral hippocampus and cortex.

Subject: Gong et al.

Verb: showed

Suggested revision: At 7 days after TBI, mGluR2/3 and mGluR5 expression was reduced in the ipsilateral hippocampus and cortex (Gong et al.).

Each thin or thick slice was placed in a submerged recording chamber and perfused with buffer at a perfusate temperature of 35–36 °C.

Subject: Each thick or thin slice

Verb: was placed

No revision necessary!

LEARNING OUTCOME: STRUCTURE SENTENCES IN CORRECT PARALLEL STRUCTURE

EVALUATE WHETHER PARALLEL STRUCTURE AND/OR A CORRECT COMPARISON IS/ARE BEING USED IN THE FOLLOWING SENTENCES, AND IF NOT, CORRECT THE SENTENCE.

Climate change has led to well-documented changes in marine, terrestrial and freshwater ecological communities stemming from a diversity of processes, including productivity changes, shifts in species distributions, and changes in timing of seasonal events.

The list at the end of this sentence is not in parallel structure. If the first item is revised to "changes in productivity" it will match the following to items, "shifts in species distributions" and "changes in timing".

We observed little evidence of menu reformulation among the top-selling items after labeling and are finding that the distribution of nutrient content for menu items was similar.

This compound sentence does not follow parallel structure. The main verb of the first independent clause (observed) is in simple past tense while the main verb of the second independent clause (are finding) is in progressive present tense. It also has an incomplete comparison. The distribution of nutrient content for menu items was similar to what?

These RNA structures, as well as specific RNA sequences and motifs, govern many essential viral processes such as translation, replication, and packaging.

This sentence is fine! Translation, replication, and packaging are all nouns that describe processes.

Two homozygous transgenic T3 lines were selected for further work, one carrying the CRIPSR/Cas9 construct and the second carried the GUS reporter construct.

This sentence does not follow parallel structure, in that the verbs in the dependent clause are in different tenses (carrying and carried).

The A and B transgenic lines showed elevated levels of Cas9 and sgRNA, while the C line has lower Cas9 and sgRNA levels.

This sentence has two incomplete comparisons. Elevated levels or lower levels compared to what?