Article (Author, journal, date)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date reviewed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Step 1: Get the basics of the article**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | NO | YES | | n/a | |
| Based upon the title and abstract, would you consider it important to read the article for your own professional / scientific development? |  |  | |  | |
| Do the authors have expertise in the field? |  |  | |  | |
| Is the abstract structured? (goal OR hypothesis, methods, results, conclusion) |  |  | |  | |
| Is there a clearly stated hypothesis (OR objective OR goal)? |  |  | |  | |
| What type of paper is this?  Opinion (e.g. letter to editor, brief commentary)  Descriptive (e.g. case report, documentation of observations, new method)  Review of literature  Research | |  |  | |  |
| Is the study population OR experimental subject clearly described? |  |  | |  | |
| (For human studies – is the population relevant to the population at large?) |  |  | |  | |
| Are the methods clearly described (could the experiment be reproduced)? |  |  | |  | |
| Do the methods help to address the hypothesis? |  |  | |  | |
| Have ethical issues been addressed? (e.g. animal welfare, patient enrollment, confidentiality, etc.) |  |  | |  | |
| Are the statistical approaches appropriate? |  |  | |  | |
| Are the results clearly described? |  |  | |  | |
| Are the figures useful AND of high quality? |  |  | |  | |
| Does the discussion explain the results adequately? |  |  | |  | |
| Does the discussion address shortcomings of the study? |  |  | |  | |
| Do the conclusions relate to the initial hypothesis (OR goal) and are they supported by the results? |  |  | |  | |
| Is the paper well written (is it easy to read)? |  |  | |  | |
| Is the citation list useful? (i.e. if you question any of the “facts” can you determine their source?) |  |  | |  | |

**Step 2: Get the “take home” information of the article**

* Describe most significant discoveries (data) of the article
* Compare with reports in the literature from others or the same lab in the related topic, explain why the discoveries are significant
* How much do you trust the data? Inconsistent/contradictory results are common among papers. Many of the controversies are due to experimental conditions, reagents, cell types, animal models……
* How useful are the data to your project

**Step 3: Get to the next step: what needs to be done**

* Read between lines to find out shortcomings of the paper. Think about possible alternative explanations of the data. Would the conclusions be different if another control was performed?
* If you were the first (or the last) author of the paper, what would you do next?

Longitudinal or Topside down approach

Transversal approach

NOTE: The objective is to read and review the scientific literature CRITICALLY! In your regular reading you do not need to complete the checklists but you should think about all of the criteria.

Scoring (with focus on basic research)

|  |  |
| --- | --- |
| **Criteria** | Score |
| **Relevance** |  |
| Not relevant to my work | 1 |
| Possibly relevant to my work | 2 |
| Directly relevant to my work | 3 |
|  |  |
| **Educational value** |  |
| Will certainly not influence my work | 1 |
| Will cause me to reconsider how I do things | 2 |
| Will probably alter my approach | 3 |
| Will definitely alter my approach | 4 |
|  |  |
| **Applicability** |  |
| Impossible for me to do | 1 |
| Major changes needed to apply | 2 |
| Could be done with reasonable organization / planning / expense | 3 |
| Could be done immediately | 4 |
|  |  |
| **Quality of research article** |  |
| Poor descriptive study hampered by inadequate controls or questionable rationale | 1 |
| Descriptive study, but limited scope or methods suboptimal or not reproducible | 2 |
| Well controlled study with sound statistical comparisons | 3 |
| As above, with randomization and blinded assessments | 5 |
| or |  |
| As above, with multiple approaches leading to same conclusion | 5 |
| Flawless scientific paper | 10 |
| **OR** |  |
| **Quality of review article** |  |
| Brief review of authors own work | 1 |
| Focused review obviously designed to support author’s viewpoint | 2 |
| Comprehensive review but lacking in critical appraisal | 3 |
| Comprehensive review with critical appraisals and objective conclusions | 4 |